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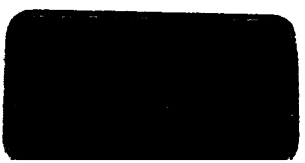

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BY

H. W. HARPER.

BOSTON:
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Culinary friends.

INTRODUCTION.

THIS little work is offered as a manual of reference and information for HOUSEKEEPERS generally, and also for BARBERS and HAIRDRESSERS. It contains recipes for making a great variety of articles needed by the former, and used or sold by the latter. Many of these have been repeatedly tested, and can be confidently recommended as being genuine and valuable. Others have been taken from high standard works of both American and European production; and the character of the works is a sufficient guaranty for their truthfulness. Many of these recipes (some now appearing in print for the first time), have been sold at enormously high prices; of one in particular, the right of a single county was sold, only a few years since, for two hundred dollars.

It is still advantageously used by certain firms in this city. That portion of the work relating to the culture of house and garden plants, and to the treatment of fruit-trees, has been prepared by one thoroughly conversant with the subject, and will be found of especial interest to amateur gardeners. The instruction in regard to the breeding and care of canary-birds, and to a proper selection of food for them, is the result of long and successful experience, and will be highly prized by those engaged in this pursuit. The information concerning the hair and its diseases has been compiled from the first medical works in the world; and cannot fail to be of great value to barbers and hairdressers everywhere.

BOSTON, June, 1868.

HOUSEKEEPERS' RECIPES.

THE following recipes we have arranged under the head of Housekeepers' Recipes, because most of them are what every housekeeper needs, and will find of immense value.

TO KEEP APPLES FROM FREEZING.

Apples form an article of chief necessity in almost every family: therefore, great care is taken to protect them from frost; it being well known that they, if left unprotected, are destroyed by the first frost which occurs. They may be kept in the attic with impunity throughout the winter, by simply covering them over with a linen cloth: be sure you have *linen*, for woollen or other cloth is of *no avail*.

TO PRESERVE GRAPES.

Take a cask or barrel which will hold water, and put into it, first a layer of bran, dried in an oven or of ashes well dried and sifted; upon

this place a layer of grapes well cleaned, and gathered in the afternoon of a dry day, before they are perfectly ripe; proceed thus with alternate layers of bran or ashes and grapes, till the barrel is full, taking care that the grapes do not touch each other, and to let the last layer be of bran or ashes; then close the barrel so that the air may not penetrate, which is an essential point Grapes thus packed will keep for nine or even twelve months. To restore them to freshness, cut the end of the stalk of each bunch of grapes, and put it into red wine, as you would flowers into water. White grapes should be put into white wine.

TO KEEP ORANGES AND LEMONS.

Take fine sand, and make it very dry; after it is cold, put a quantity of it into a clean vessel; then take your oranges, and set a layer of them in the sand, the stalk-end down, so that they do not touch each other; then put in more sand, enough to cover them two inches deep; keep in a cool place, but still from freezing, and you will find your fruit in high preservation at the end of several months.

TO PRESERVE EGGS.

Take lime 1 bushel; salt 2 pounds; cream of tartar ½ pound; and water to make a liquid in

which an egg will float. Eggs may be preserved in this solution for two years: this ought to be kept in a cellar or other cool place. Be careful not to crack the shells off putting them into the liquid.

TO INCREASE THE LAYING OF EGGS.

The best method is to mix with their food, every other day, about a teaspoon of ground cayenne pepper to each dozen fowl. Whilst upon this subject, it would be well to say, that if your hens lay soft eggs, or eggs without shells, you should put plenty of old plaster, egg-shells, or even oyster-shells broken up, where they can get at it.

TO PRESERVE MEATS.

Beef to pickle for long keeping. First, thoroughly rub salt into it, and let it remain in bulk for twenty-four hours to draw off the blood. Second, take it up, letting it drain, and pack as desired. Third, have ready a pickle prepared as follows: for every 100 pounds of beef use 7 pounds salt; saltpetre and cayenne pepper each, 1 ounce; molasses, 1 quart; and soft water, 8 gallons: boil and skim well, and when cold pour over the beef.

Another method is to use 5 pounds salt, 1 pound brown sugar, and ¼ oz. saltpetre, to each

100 pounds; dissolve the above in sufficient water to cover the meat, and in two weeks drain all off, and make more same as first. It will then keep through the season. To boil for eating, put into boiling water; for soups, into cold water.

To Pickle Beef for Present or Winter Use and for Drying. — Cut your beef into sizable pieces, sprinkle a little salt upon the bottom of the barrel only; then pack your beef without salt amongst it; and, when packed, pour over it a brine made by dissolving 6 lbs. of salt for each 100 lbs. of beef in just sufficient water to cover it.

In three weeks, perhaps a little less, such pieces as are designed for drying will be ready to hang up by soaking over night to remove the salt from the outside.

To Keep Fresh Meat a Week or Two in Summer. — Persons living at a distance from butchers can keep meat very nicely for a week or two by putting it into sour milk or buttermilk, and placing it in a cellar or other cool place. Rinse well when used.

To preserve smoked meats, hams, &c., pack them in pulverized charcoal: they will keep for years.

To Preserve Pork and Bacon Fresh from Winter-Killing. — Lay it in pickle about a week or ten days, just pickle enough to be palatable. Then slice it up, and fry it about half or two-

thirds as much as you would for present eating; then lay it away in its own grease, in jars properly covered as you would lard. When wanted in summer, take out enough for your meal, and re-fry suitable for eating. You will find it very fine.

PICKLES.

A few recipes are here given to illustrate the methods employed in preparing these condiments. The best vinegar should be employed. Some prefer the crystal or white vinegar (distilled vinegar, or rather pure diluted wood vinegar), especially for white pickles; but the best wine vinegar is more agreeable. Stoneware jars not glazed with lead should be used to keep the pickles in; or otherwise green glass jars.

Spiced Vinegar for Pickles Generally.— Bruise in a mortar 2 oz. of black pepper, 1 oz. of ginger, ½ oz. of allspice and 1 oz. of salt: if a hotter pickle is desired, add ½ dr. of cayenne, or a few capsicums; for walnuts, add also 1 oz. of shallots. Put these into a stone jar with a quart of vinegar, and cover them with a bladder wetted with the pickle, and over this a piece of leather. Set the jar on a trivet near the fire for three days, shaking it three times a day; then pour it on the walnuts or other vegetables: for walnuts it is used hot, but for cabbage, &c.,

cold. But, to save time, it is usual to simmer the vinegar gently with the spices, which is best done in an enamelled saucepan.

Beet Root.—Boil the roots till three parts done (from 1½ to 2½ hours); then take them out; peel them, and cut them into thin slices; put them into a jar, and pour on them sufficient cold spiced vinegar as above to cover them.

Cabbage, White.—Cut them in thin slices; put them into an earthen pan, sprinkle them with salt, and let them lie for two days; then drain them, and spread them out before the fire for some hours; put them into a stone jar, and add sufficient white vinegar or pale wine vinegar to cover them, and a little mace and white peppercorns.

Cabbage, Red.—Remove the outer leaves and stalks, and cut the cabbage into quarters, and shred them into a colander or strainer, and sprinkle them with salt; next day drain them, put them into a jar, and pour upon them sufficient cold spiced vinegar to cover them. Others hang up the cabbage for a few days to dry, then shred the leaves, and put them in layers in a jar with a little salt, pepper, and ginger, and fill up with cold vinegar. Others use vinegar without spice.

Cauliflower and Broccoli.—These should be sliced, and salted for 2 or 3 days; then drained

and spread upon a dry cloth before the fire for 24 hours; then put them in layers in a jar and covered with spiced vinegar: if vegetables are put into cold salt and water (a ¼ lb. of salt to a quart of water), and gradually heated to boiling, it answers the same purpose as letting them lie some days in salt.

Cucumbers, Gherkins. — Small cucumbers, but not too young, are wiped clean with a dry cloth, put into a jar, and boiling vinegar, with a handful of salt, poured on them. Boil up the vinegar every three days, and pour it on them till they become green; then add ginger and pepper, and tie them up close for use, or cover them with salt and water (as above) in a stone jar; cover them, and set them on the hearth before the fire for two or three days, till they turn yellow; then put away the water, and cover them with hot vinegar, set them near the fire, and keep them hot for eight or ten days, till they become green; then pour off the vinegar, cover them with hot spiced vinegar, and cover them close.

Mangoes. — Large cucumbers, or small melons, are split so that a marrow-spoon may be introduced, and the seeds taken out; they are then parboiled in brine strong enough to float an egg, dried on a cloth before the fire, filled with mustard-seed and a clove of garlic, and then covered with spiced vinegar.

True Mangoes the same.

Mushrooms. — Clean them with water and flannel, and throw them into boiling salt and water in a stew-pan, and let them boil for a few minutes. Drain them in a colander, and lay them on a linen cloth, covering them with another. Put them into bottles with a blade or two of mace, and fill up with white vinegar, pouring some melted mutton-fat on the top, if intended to be kept long.

Nasturtiums, *French Beans*, and other small green vegetables, are pickled in the same way as gherkins.

Onions. — 1. Let them lay in strong salt and water for a fortnight; then take them out and peel them; put them into fresh salt and water for another fortnight; take them out, wash them clean, and let them lay in fresh water all night. Next day, put them on a cloth to drain; then put them in a jar, and pour over them hot spiced vinegar; if you wish them of a nice color, use white vinegar.

2. Peel small silver-button onions, and throw them into a stew-pan of boiling water; as soon as they look clear, take them out with a perforated spoon, and lay them on a folded cloth, covered with another; and when quite dry put them into a jar, and cover them with hot spiced vinegar. When quite cold, bung them down, and

cover with bladder wetted in the pickle, and leather.

Walnuts. — Take 100 young walnuts, lay them in salt and water for two or three days, changing the water every day. (If required to be soon ready for use, pierce each walnut with a larding-pin that the pickle may penetrate.) Wipe them with a soft cloth, and lay them on a folded cloth for some hours. Then put them in a jar, and pour on them sufficient of the above spiced vinegar, hot, to cover them. Or they may be allowed to simmer gently in strong vinegar, then put into a jar with a handful of mustard-seed, 1 oz. of ginger, ½ oz. mace, 1 oz. allspice, 2 heads of garlic, and 2 split nutmegs; and pour on them sufficient boiling vinegar to cover them. Some prefer the walnuts to be gently simmered with the brine, then laid on a cloth for a day or two till they turn black, put into a jar, and hot spiced vinegar poured on them.

Tomatoes same as gherkins. See cucumbers.

Piccalilli. *Indian* or *Mixed Pickle.* — To each gallon of strong vinegar put 4 oz. of strong curry powder, 4 oz. of good flour of mustard, 3 oz. of bruised ginger, 2 oz. of turmeric, 8 oz. of skinned shallots, and 2 oz. of garlic (the last two slightly baked in a Dutch oven), ¼ lb. salt, and 2 drachms of cayenne pepper; digest these near the fire as directed above for spiced vinegar.

Put into a jar, gherkins, sliced cucumbers, sliced onions, button onions, cauliflowers, celery, broccoli, French beans, nasturtiums, capsicums, large cucumbers, and small melons; all except the capsicum, to be parboiled in salt and water, drained, and dried on a cloth before the fire. The melons and large cucumbers to be prepared as directed above for mangoes. Pour on them the above pickle.

2. Take 1 lb. of ginger-root and ½ lb. of garlic (both previously salted and dried), 2 gallons of vinegar, ½ oz. of turmeric, ¼ lb. of long pepper; digest together for 2 or 3 days, near the fire, in a stone jar, or gently simmer them in a pipkin or enamelled saucepan; then put in the above vegetables, or almost any except red cabbage and walnuts, all previously salted and dried.

VINEGAR should not be boiled in metallic vessels, as the salts formed by such contacts are poisonous: it should be put into a stone jar, and that set into your kettle of water to boil; and pickles, when made, are best kept in glass jars, well covered, and having a wooden or horn spoon to remove them when wanted.

KETCHUPS.

Ketchup, Camp. — 1. Anchovies, 4 oz.; mix with beer, 2 quarts; white wine, 1 quart; boil a short time, add peeled shallots, 3 oz.; black pep-

per, mace, nutmegs, and ginger, of each ½ oz.: macerate 14 days, and bottle.

2. Vinegar, 2 pints; walnut ketchup, 1 pint; mushroom ketchup, 3 oz.; garlic, 4 cloves; cayenne-pods, ½ oz.; soy, 2 oz.; wine, 4 oz.; 3 anchovies; 1 oz. salt: macerate together 3 weeks, and bottle.

3. Vinegar, 1 pint; walnut ketchup, 4 oz.; soy, 2 oz.; 12 chopped anchovies, 2 cloves of garlic, and cayenne-pods, 1 drachm: macerate 3 weeks, and bottle.

Cucumber Ketchup. — Make same as mushroom ketchup. Used, with melted butter, for fowls.

Cockle Ketchup. — Scald cockles in their own liquor, add a little water, strain, and season to taste. If the ketchup is wanted white, use sherry wine, a sliced lemon, mace, nutmeg, and white pepper; if required brown, color with burnt sugar, and use some port wine, anchovies, and garlic. Used to fish.

Mushroom Ketchup. — 1. Pickled mushrooms, 4 lbs.; salt, 2 lbs. Sprinkle it on the mushrooms; and, when they liquefy, remove the juice; add pimento, 6 oz.; cloves, 1 oz.; boil gently and strain; the remaining liquor, if any, may be treated with pepper, mace, and ginger for a second quality.

2. Express the mushrooms in the tincture

press; and to each gallon add salt, 8 oz.; shallots, 1½ oz.; pimento, 1 oz.; black pepper and ginger, of each ½ oz.; and cloves, 1 drachm.

Mushroom ketchup is apt to lose strength and turn bad in a few weeks after it is first made; but again boiling with a little fresh spice, at the end of two months, will make it keep good a year round.

Oyster Ketchup. — Mix together wine or good ale, 1 pint; salt, 1 oz.; mace and black pepper, of each 1½ drachms. Cover oysters with this pickle, boil ten minutes, and, when cool, bottle, adding a little brandy to each bottle.

Tomato Ketchup. — Proceed as for mushroom ketchup, and add a little Chili pepper vinegar.

Walnut Ketchup. — 1. The juice of green, tender walnuts expressed, 1 gallon; boil and skim till clear, add 2 lbs. of anchovies, 2 lbs. shallots, pepper, mace, and cloves, of each 1 oz., and a sliced clove of garlic; simmer 15 minutes, add salt to taste, strain, and, when cool, bottle. Let it stand 12 months before using.

2. Tender walnuts, bruised, ½ bushel; add to each gallon of juice, red wine, 1 quart; anchovy and bay salt, of each 4 oz.; allspice, 1 oz.; black pepper, 2 oz.; cloves and mace, of each 2 drachms a little ginger, and sliced horseradish. Simmer slowly until enough; and, when cold, bottle.

3. Green walnut-shells, bruised, 4 parts; salt,

1 part; mix, and in 7 days express the liquor. To each gallon add allspice, 4 oz.; ginger, 3 oz.; long pepper, 2 oz.; cloves and mace, of each 1 oz. Simmer for 30 minutes, cool, and bottle.

CURRY POWDER. — A combination of spices used to season meats with. There are a number of recipes extant for the true curry powder: the articles used are similar in all of them, only differing as to the quantity. A very good mixture consists of turmeric and coriander-seeds, of each 4 oz.; black pepper, 2½ oz.; ginger, 14 drachms; cinnamon, mace, and cloves, each ½ oz.; cardamom-seeds, 1 oz.; cumin-seeds, 2 dr.; cayenne pepper, 1 oz.; powder and mix.

JELLIES.

Arrowroot Jelly. — Arrowroot, 1 table-spoonful; mix to a smooth paste with a little cold water; pour on it half a pint of boiling milk; stir some salt in, and boil it a minute or two; add a little nutmeg and lump sugar, and, when thought requisite, a tablespoonful of wine. Much better prepared with milk for most purposes than when made with water, but water must be used when milk disagrees with the patient.

Biscuit Jelly. — Boil soaked and crushed biscuit in some milk and water, with a little salt; when cooked sufficiently, add sugar to taste, and

some ground cinnamon, a little wine may also be added in diarrhœa.

Corsican Moss Jelly.— Corsican moss 1 oz., water sufficient to make 8 oz., boil 1 hour, add soaked isinglass, 1 drachm, lump-sugar 2 oz., white wine 2 oz.

Hartshorn Jelly. — Hartshorn-shavings 8 oz., rinse them, then boil, in clean water, 3 pints down to 1½ pints, strain, and add sugar 4 oz., the juice of a lemon and the white of an egg, beat up with a little cold water; boil till it will jelly, then add the peel of the lemon, and flavor with spice to suit.

Iceland Moss Jelly. — Soaked and washed Iceland moss, 2 oz., water sufficient to make a strong solution; boil 1 hour, strain, add 1 drachm of isinglass, and boil to a proper consistence. Used in cough and asthma.

Irish Moss Jelly. — Irish moss, soaked and washed, is boiled as Iceland moss, and, after straining, flavored to taste. Either Irish or Iceland moss jellies are improved as cough medicines if boiled with linseed, then flavored with liquorice, sugar or rock candy as it is called, and the juice of a lemon.

Gelatine Jelly. — Steep 1 oz. of gelatine in half a pint of cold water for ten minutes, add as much more water, boiling, and stir until dissolved; then mix in two sliced lemons, with sugar and wine to taste.

Isinglass Jelly. — Steep ½ oz. of isinglass in a pint of cold water for a short time; heat it gently till dissolved, strain, and flavor it to taste. If wanted clear, add the white of an egg before removing it from the fire.

Sago Jelly. — Soak 1 oz. of sago for an hour in water, then boil in 1 pint of fresh water, until clear; add wine, sugar, lemon-peel, and spice, if approved. It may be made in milk, when preferred.

Tapioca Jelly. — Wash 1 oz. of tapioca well, then soak in a pint of fresh water 5 or 6 hours; add the peel of a lemon, and set all on to heat; simmer till clear, then add the juice of the lemon with wine and sugar to taste.

MACARONI. — Boil macaroni in salt and water until soft, pour away the liquor, and add to the macaroni, butter, cream, a little grated cheese, and, if preferred, a little spice also; toast in a Dutch oven until brown.

2. Instead of using water, boil it first in milk, or weak veal broth.

3. *Pudding.* — Simmer 2 oz. of macaroni in milk till tender, adding a little cinnamon and lemon peel, then put in a dish with one egg, and sufficient sugar and nutmeg to taste, and bake.

ASSES' MILK, ARTIFICIAL, 1. — Milk, 1 quart; rice, rock candy, each 1 oz.; bruised eringo-root, 1 drachm, boil together and strain.

2. Egg, milk, sweetened with rock candy.

3. Hartshorn-shavings, 1 oz., water, 1 pint; boil; add sugar and milk.

ATKINSON'S INFANT'S PRESERVATIVE. — A proposed substitute consists of carbonate of magnesia, 6 drachms, sugar, 2 oz., oil of anise-seed, 20 drops, sal volatile, 2½ drachms, laudanum, 1 drachm, syrup of saffron, 1 oz.; make up 1 pint with caraway water.

BEEF TEA. — 1 lb. lean beef minced very small; mix with its own weight of cold water, heat gradually to the boiling point, and when it has boiled a minute or two, strain. The tea may be salted or flavored to taste, and colored with roast onion or burnt sugar.

2. (*Seymour.*) — 2½ lbs. lean beef, minced small, cold water 3 pints; heat gradually without boiling, simmer to one-half, and strain.

3. *Beef Gravy.* — Divide lean meat into moderate-sized pieces, and place them in any convenient cup or vessel; place this vessel in a pan of water, and let the water continue boiling until the beef parts with its gravy, which may be flavored for use with a little salt and pepper.

LEMONADE. — 1. Slice 2 lemons, pour on 1 pint of boiling water, and add 2 oz. of loaf-sugar.

2. Fresh lemon-juice 4 oz., lemon-peel ½ oz., white sugar 4 oz., boiling water 3 pints; cool and strain.

3. *Concentrated.* — Lemon-juice 8 oz., lump sugar 15 oz.; dissolve, and add of tincture of lemon-peel sufficient to flavor it. For use, mix with water, with or without a little sirup of ginger.

To Prevent Doors Creaking. — Rub the hinges with soap or oil.

To Destroy Insects. — When bugs have obtained a lodgement in walls or timber, the surest mode of overcoming the nuisance is to putty up every hole that is moderately large, and oil-paint the whole wall or timber. In bed furniture, a mixture of soft soap, with snuff or arsenic, is useful to fill up the holes where the bolts or fastenings are fixed, &c. French polish may be applied to smoother parts of the wood.

Bug Poison. — 1. Bichloride of mercury, and hydrochloric acid, of each 1 oz., water 4 oz. Mix; add turpentine and strong decoction of tobacco, of each 15 oz.

2. Turpentine 4 oz., camphor ½ oz., creosote 20 drops. Mix.

3. *For Floors.* — Bichloride of mercury, sal ammoniac, each 4 oz., hot water 2 gallons. Used to wash boarded floors.

To Clean Carpets. — Brush them with damp waste tea-leaves, sprinkle on them, shake and beat them. Then mix 3 gills of ox-gall in a gallon of water; brush the carpet over with this;

remove the lather formed with plenty of clean water, and dry with dusters. Afterwards *hang them* in an airy apartment.

To CLEAN KID GLOVES. — Soap 3 oz., water 2 oz., beat together, and add eau-de-javelle 2 oz., liquor ammonia 1 dr. The paste is used to rub over soiled kid gloves, properly stretched, for the purpose of cleaning them.

To CLEAN CASKS. — Wash them well with hot water, then proceed to cleanse them by any of the following modes:—

1. Oil of vitriol, and water, equal parts. Mix; wash the cask, and afterwards rinse with clean water.

2. Wash with chloride of lime first, then proceed as above.

3. Wash with strong lime-water.

4. Dip linen cloth in melted brimstone, set it on fire, put it into the cask at the bung-hole, and drive in the bung, so as to suspend the cloth. In two hours open the bung-hole.

CREAM FOR FURNITURE. — 1. Soft water 1 gallon, beeswax 1 lb., soap 4 oz., pearlash 2 oz.: boil and dissolve. Laid on furniture, *and polished* off with a brush and leather.

2. Beeswax 4 oz., white soap ½ oz., oil of turpentine, and boiling water, of each 8 oz. Melt the wax in the turpentine, dissolve the soap in water, and mix the two liquids.

How to Clean Feathers from their Animal Oil. — Take for every gallon of clear water a pound of quick lime. Mix them well together; and, when undissolved lime is precipitated in fine powder, pour off the clear lime-water for use at the time it is wanted. Put the feathers to be cleaned in another tub, and add to them a sufficient quantity of the clear lime-water to cover the feathers about three inches, when well immersed and stirred therein. The feathers, when thoroughly moistened, will sink down, and should remain in the lime-water three or four days: after which the foul liquor should be separated from the feathers by laying them on a sieve. The feathers should be afterwards well washed in clean water, and dried on nets, the meshes being about the same fineness as those of cabbage-nets. The feathers must from time to time be shaken on the net; and, as they dry, they will fall through the meshes, and are to be collected for use. The admission of air will be serviceable in the drying; and the whole process may be completed in about three weeks. The feathers, after being thus prepared, will want nothing more than beating for use, for beds, bolsters, &c.

Ointment for Chapped Hands. — Melt together spermaceti ½ oz., and white wax 1 dr.; put them into a stone mortar; add glycerine 1 fluid ounce, oil of almonds 2 fluid ounces, and

rub together until cold. Apply to the chaps or cracks two or three times daily, and at bed time.

SALVE FOR BURNS, FROST-BITES, CRACKED NIPPLES, &c. — Equal parts of turpentine, sweet oil, and beeswax. Melt the oil and wax together, and, when cool, add the turpentine, and stir until cold, which keeps them evenly mixed. This is one of the best recipes known, and should be in the hands of every housekeeper at all times ready for use. If applied upon burns or scalds before they have began to blister, it will prevent their doing so. Another very good recipe for deep and extensive burns is, — beeswax 4 ounces, opium ¼ ounce, sugar of lead 1 ounce. Melt the beeswax, and rub the lead up in the wax, then the opium, and finally add about a gill of sweet oil, or sufficient to make a salve of proper consistence. This is also recommended for the relief of pain and inflammation of piles.

POULTICE FOR BURNS AND FROZEN FLESH. — Indian-meal poultices, covered with young hyson tea, moistened with hot water, and laid over burns or frozen parts, as hot as can be borne, will relieve the pain in five minutes; and blisters, if they have not, will not arise. One poultice is usually sufficient.

CRACKED NIPPLES. — Glycerine and tannin, equal weights, rubbed together into an ointment, is very highly recommended.

To cure Itching Feet from Frost-bites. — Take hydrochloric acid 1 oz.; rainwater 7 oz.; wash the feet with it 2 or 3 times daily, or wet the socks with the preparation until relieved.

Chilblains, to Cure. — Mutton tallow and lard of each ¼ lb.; melt in an iron vessel, and add hydrated oxyde of iron 2 oz.; stirring continually with an iron spoon until the mass is of an uniform black color; then let it cool and add venice-turpentine 2 oz.; and Armenian bole 1 oz.; oil of burgamot 1 dr. Rub up the bole with a little olive oil before putting it in. Apply several times daily by putting it upon lint or linen.

The Feet. — The feet of some persons evolve a disagreeable odor. Wash them in warm water, to which has been added a little hydrochloric acid or chloride of lime.

Warts and Corns. — To cure in ten minutes, take a small piece of potash, and let it stand in the open air until it slacks; then thicken it to a paste with pulverized gum arabic, which prevents it from spreading where it is not wanted. Then pare off the seeds of the wart or dead skin of the corn, and apply the paste, and let it remain on ten minutes; wash off, and soak the place in sharp vinegar or sweet oil, either of which will remove the alkali. Now do not jam or squeeze out the wart or corn, but leave them alone; and Nature will remove them without danger of

taking cold, as would be if a sore is made by pinching them out. Corns are caused by pressure; in most cases, removing the pressure cures them.

Another Efficient Remedy for Corns is to take a lemon, cut off a piece, then nick it so as to let in the toe, having the pulp next the corn; lie so that it cannot move. Apply this on retiring; and in the morning, it will be found easy to remove most of your corns. Two or three applications will entirely cure. This is a simple remedy, and not likely to cause any trouble in experimenting. Try it.

Another Innocent and Sure Cure for Warts, Chilblains, and Corns. — Nitric and muriatic acids, blue vitriol, and salts of tartar, of each 1 oz.; add the blue vitriol to either of the acids, and in the same way add the salts of tartar; when done foaming, add the other acid, and in a few days it will be fit for use. For frosted feet, rub them with a swab or brush; wet with this solution, very lightly, every part that is red and dry; in a day or two, if not cured, apply again as before. For corns, apply in like manner, scraping off all dead skin before using. For warts, wet once a week until they disappear, which will not take very long.

Another very Simple Remedy for Corns, is to bind a piece of cotton batting upon it, and

wet it three times a day with spirits of turpentine.

To Cure Ingrowing Toe-nails. — This remedy is recommended by a writer to "The Boston Medical and Surgical Journal," who says, The first patient I tried this plan upon was a young lady, who had been unable to put on a shoe for several months. The edge of the nail was deeply undermined; the granulations formed a high ridge, partly covered with the skin; and pus constantly oozed from the root of the nail. The whole toe was swollen, and extremely painful and tender. My mode of proceeding was this: —

I put a very small piece of tallow in a spoon, and heated it until it became very hot, and poured it on the granulations. The effect was almost magical. Pain and tenderness were at once relieved; and in a few days the granulations were all gone, the diseased parts dry and destitute of all feeling, and the edge of the nail exposed so as to admit of being pared away without any inconvenience. The cure was complete, and the trouble never returned.

FELONS. — Venice turpentine 1 oz., put into half a teaspoon of water, and stir with a stick until the mass looks like candied honey; then spread on a cloth a good quantity, and wrap around the finger; if the case is recent, it will remove the pain in six hours.

2. Make a poultice of poke-root and apply: if matter is not formed, this cures by absorption; if it is, it soon brings it to a head, and thus saves much suffering and pain.

3. Blue flag and Hellebore roots, equal parts, boiled in milk and water; then soak the finger in it for 20 minutes as hot as it can be borne, and bind the roots on the parts for one hour.

4. Take sweet oil ½ pint, and stew a small piece of plug tobacco (a common-size plug is about the size, or about 2 oz. in weight) until it is crisped; then squeeze it out, and add red lead 1 oz., and boil until black; when a little cool, add pulverized camphor gum 1 oz.

CROUP MIXTURE. — In cases of croup, the first thing to do is to get hot water ready, and place the feet of the child in it as soon as possible, and give a dose of any emetic to cause vomiting. A good emetic is made by taking equal parts of Tincture of Lobelia and Blood Root; or take any thing which will cause the child to vomit freely, such as mustard-water made weak and warm, or salt and water, or even goose-grease and chamber-lye mixed in equal proportion. Then lay cloths rung out of hot water upon the chest and throat, changing sufficient to keep them hot. The bowels should be kept free.

Croup Ointment. — Take mutton suet and nice lard of each ½ lb.; spermaceti ½ oz.; melt

them together, and add ½ pint of the best vinegar, and simmer until the vinegar is nearly evaporated, skimming well, and constantly stirring, until it begins to granulate; then add oils of amber and spruce and pulverized sugar of lead of each ½ oz.; now remove from the fire, and stir it until cool. Dose. — For a child 2 years of age, give from ½ to 1 teaspoon every ½ hour until relief is obtained, or until vomiting takes place; at the same time rubbing it upon the chest and over the throat and lungs freely.

REMEDY FOR WHOOPING-COUGH. — Sulphurate of copper ½ grain, sirup of poppies ½ oz., aniseseed water 1½ oz.; mix. Dose. — One to two teaspoonfuls.

Popular Remedies for Cough. — 1. Sirup of poppies, sirup of squills, and paregoric, equal parts; mix. Dose. — A teaspoonful when the cough is troublesome.

2. Sirup of poppies 1 oz., paregoric and tincture of squills of each ½ oz., tincture of tolu 1 drachm; mix. Dose. — A teaspoonful when the cough is troublesome.

Draught. — Laudanum ½ drachm, vinegar and honey each ½ oz., ipecacuanha wine 20 drops; mix, and take at bed-time.

Soreness or Hoarseness from Coughs. — Remedy. — Spikenard root, bruised and steeped in a teapot by using half water and half spirits,

then inhaling the steam when not too hot, by breathing through the spout, will relieve the soreness and hoarseness of the lungs or throat, arising from much coughing.

DEAFNESS, REMEDY FOR. — 1. Oil of almonds 1 lb., bruised garlic 2 oz., alkanet ½ oz.; infuse and strain. Applied with a little cotton to the ear.

2. Hen's oil 1 gill, and a handful of the sweet clover raised in gardens; stew it in the oil until the juice is all out, strain it, and bottle for use.

Where deafness is recent, it will be cured by putting 3 or 4 drops daily into the ear; but, if of long standing, much relief will be obtained if continued a sufficient length of time.

FLIES, TO DESTROY. — 1. Boil some quassia-chips in a little water, sweeten with sirup or molasses, and place it in saucers. It is destructive to flies, but not to children.

2. Spread paper with turpentine varnish, and oil it to keep the varnish from drying: it entangles the flies which rest on it.

TO MEND TINWARE by the heat of a candle. Take a vial about two-thirds full of muriatic acid, and put into it little bits of sheet zinc as long as it dissolves them; then put in a crumb of sal-ammoniac, and fill up with water, and it is ready to use. Then, with the cork of the vial, wet the place to be mended with the preparation; then

put a piece of sheet zinc over the hole, and hold a lighted candle or spirit-lamp under the place, which melts the solder on the tin, and causes the zinc to adhere without further trouble. Wet the zinc also with the solution; or a little solder may be put on instead of the zinc, or with the zinc.

STAINS, TO REMOVE. — The stains of ink on cloth, paper, or wood may be removed by almost all acids; but those acids are to be preferred which are least likely to injure the texture of the stained substance. The muriatic acid, diluted with five or six times its weight of water, may be applied to the spot, and after a minute or two may be washed off, repeating the application as often as may be necessary. But the vegetable acids are attended with less risk, and are equally effectual. A solution of the oxalic, citric (acid of lemons), or tartareous acids in water may be applied to the most delicate fabrics, without any danger of injuring them; and the same solutions will discharge writing but not printing ink. Hence they may be employed in cleaning books which have been defaced by writing on the margin, without impairing the text. Lemon-juice and the juice of sorrels will also remove ink-stains, but not so easily as the concrete acid of lemons or citric acid.

To Remove Iron-Stains. — These may be occasioned either by ink-stains, which, on the applica-

tion of the soap, are changed into iron-stains, or by direct contact of rusted iron. They may be removed by diluted muriatic acid, or by one of the vegetables already mentioned. When suffered to remain long on cloth, they become extremely difficult to take out, because the iron, by repeated moistening with water, and exposure to the air, acquires such an addition of oxygen as renders it insoluble in acids. It has been found, however, that even these spots may be discharged by applying first a solution of an alkaline sulphuret, which must be well washed from the cloth, and afterwards a liquid acid. The sulphuret, in this case, extracts part of the oxygen from the iron, and renders it soluble in diluted acids.

To Remove the Stains of Fruit and Wine.— These are best removed by a watery solution of the oxygenated muriatic acid, or by that of oxygenated muriate of potass or lime, to which a little sulphuric acid has been added. The stained spot may be steeped in one of these solutions till it is discharged; but the solution can only be applied with safety to white goods, because the uncombined oxygenated acid discharges all printed and dyed colors. A convenient mode of applying the oxygenated acid, easily practicable by persons who have not the apparatus for saturating water with the gas, is as follows: Put about a tablespoonful of muriatic

acid (spirit of salt), into a teacup, and add to it about a teaspoonful of powdered manganese; then set a cup in a larger one filled with hot water, and expose it to the fumes that arise from the teacup. If the exposure be continued a sufficient length of time, the stains will disappear.

To Remove Stains of Grease from Cloth. — Spots of grease may be removed by diluted solution of potass; but this must be cautiously applied to prevent injury to the cloth. Stains of white wax, which sometimes fall upon the clothes from wax candles, are removable by spirits of turpentine or sulphuric ether. The marks of white paint may also be discharged by the last-mentioned agents.

To Take Spots of Grease out of Books, Prints, or Paper. — After having gently warmed the paper that is stained with grease, wax, oil, or any other fat body, take out as much as possible of it by means of blotting-paper: then dip a small brush in the essential oil of turpentine, heated almost to ebullition (for, when cold, it acts only very weakly), and draw it gently over both sides of the paper, which must be carefully kept warm. This operation must be repeated as many times as the quantity of fat imbibed by the paper, or the thickness of the paper, may render necessary. When the greasy substance is entirely removed, recourse may be had to the

following method to restore the paper to its former whiteness, which is not completely restored by the first process. Dip another brush in highly rectified spirit of wine, and draw it in like manner over the place which was stained, and particularly round the edges, to remove the border that would still present a stain. By employing these means with proper caution, the spot will totally disappear; the paper will resume its original whiteness; and if the process has been employed on a part written on with common ink, or printed with printer's ink, it will experience no alteration.

To Make Portable Balls, for Removing Spots from Clothes in General.—Take fullers' earth, perfectly dried, so that it crumbles into a powder; moisten it with the clear juice of lemons, and add a small quantity of pure pearl ashes; then work and knead the whole carefully together, till it acquires the consistence of a thick elastic paste; form it into convenient small balls, and expose them to the heat of the sun, in which they ought to be completely dried. In this state, they are fit for use in the manner following: First, moisten the spot on your clothes with water; then rub it with the ball just described, and suffer it again to dry in the sun; after having washed the spot with pure water, it will entirely disappear.

The Fumes of Brimstone Useful in Removing Spots or Stains in Linen, &c. — If a red rose be held in the fumes of a brimstone-match, the color will soon begin to change; and, at length, the flower will become white. By the same process, fruit-stains or iron-moulds may be removed from linen or cotton cloths, if the spots be previously moistened with water. With iron-moulds weak muriatic acid is preferable, assisted by heat; as by laying the cloth on a teapot or kettle filled with boiling water.

To Remove Spots of Grease from Paper. — Take an equal quantity of reach-alum burnt, and flower of brimstone, finely powdered together; wet the paper a little, and put a small quantity of the powder on the place, rubbing it gently with your finger, and the spot will disappear.

Substitute for Salt of Sorrel, for Removing Ink-Spots and Iron-Moulds. — Take six parts of crystals of tartar in powder, three parts of alum likewise pulverized, and use them in the same manner as salt of sorrel.

Expeditious Method of Taking out Stains from Scarlet, or Velvet of any other Color. — Take soapwort, bruise it, strain out its juices, and add to it a small quantity of black soap. Wash the stain with this liquor, suffering it to dry between whiles; and by this method the spots will in a day or two entirely disappear.

To Take Spots Effectually out of Silk, Linen, or Woollens. — Spirits of turpentine, twelve drops, and the same quantity of spirits of wine; grind these with an ounce of pipemaker's clay, and rub the spots therewith. You are to wet the composition when you do either silk, linen, or woollen with it; let it remain till dry, then rub off, and the spot or spots will disappear.

True Spirits of Salts, diluted with water, will remove iron-moulds from linen; and sal-ammoniac, with lime, will take out the stains of wine.

To Take the Stains of Grease from Woollen or Silk. — Three ounces of spirits of wine, three ounces of French chalk powdered, and five ounces of pipe-clay. Mix the above ingredients, and make them up in rolls about the length of a finger, and you will find a never-failing remedy for removing grease from woollen or silken goods. N. B. — it is applied by rubbing on the spot either dry or wet, and afterwards brushing the place.

Easy and Safe Method of Discharging Grease from Woollen Cloths. — Fuller's earth or tobacco pipe-clay, being put wet on an oil-spot, absorbs the oil as the water evaporates, and leaves the vegetable or animal fibres of the cloth clean on being beaten or brushed out. When the spot is occasioned by tallow or wax, it is

necessary to heat the part cautiously by an iron or the fire while the cloth is drying. In some kinds of goods, blotting-paper, bran, or raw starch, may be used with advantage.

To Take out Spots of Ink. — As soon as the accident happens, wet the place with juice of sorrel or lemon, or with vinegar, and the best hard white soap.

To Take Iron-moulds out of Linen — Hold the iron-mould on the cover of a tankard of boiling water, and rub on the spot a little juice of sorrel and a little salt; and, when the cloth has thoroughly imbibed the juice, wash it in lye.

To Take out Spots on Silk. — Rub the spots with spirits of turpentine: this spirit exhaling, carries off with it the oil that causes the spot.

To Take Wax out of Velvet of all Colors except Crimson. — Take a crumby wheaten loaf, cut it in two, toast it before the fire, and, while very hot, apply it to the part spotted with wax. Then apply another piece of toasted bread hot as before, and continue this application until the wax is entirely taken out.

Process of Preparing Nitrous Acid for Extracting Stains, &c., from Tanned Leather. — Take half a pint of water, a quarter of a pint of nitrous acid, and half an ounce of salts of lemon. Put the water in a bottle, and add the nitrous acid to it, and afterwards the salts of lemon.

When the heat which is caused by the mixture has subsided, add half a pint of skimmed milk; shake them occasionally for three or four days, and the liquor will be fit for use. *The Application.* — With a brush and soft water, clean the surface of the leather from all grease, dirt, &c. Next scrape on it a little Bath brick, or white free sand, add a little of the above liquor, and, with a brush, scour it well, repeating this process till the whole has been gone over; then, with a clean sponge and water, wash off what remains of the brick: leave the leather to dry gradually, and it will be of a light new color. If it is wished to be darker, brush it with a hard brush a little before it is dry, and it will be of a rich brown tinge.

To Extract Grease-Spots from Paper. — Scrape finely some pipe-clay, the quantity of which may be easily determined on making the experiment: lay thereon the sheet or leaf, and cover the spot in like manner with the clay; cover the whole with a sheet of paper; then apply, for a few seconds, a heated ironing-box or flat-iron, or any substitute adopted by laundresses. On using India rubber to remove the dust taken up by the grease, the paper will be found restored to its original degree of whiteness and opacity.

To Take Spots out of Cloths, Stuffs, Silk, Cotton, and Linen. — Take two quarts of spring-

water, put in it a little fine white potash about the quantity of a walnut, and a lemon cut in slices. Mix these well together, and let it stand for twenty-four hours in the sun; then strain it off, and put the clear liquid up for use. This water takes out all the spots, whether pitch, grease, or oil, as well on hats as cloths and stuffs, silk or cotton, and linen. As soon as the spot is taken out, wash the place with fair water; for cloths of a deep color, add to a spoonful of this mixture as much fair water as to weaken it.

Grease-spots may be removed by using soap and water with a tooth or nail brush, and afterwards wiping off the lather with the wet corner of a towel. Essence of lemon, or pure spirits of turpentine, will remove pitch from cloth, &c.

In woollen cloth, an easier method is to scrape off the hard tallow with the edge of a teaspoon, then rub the part briskly with a clean woollen rag, shifting the rag as the part becomes dirty; or place some blotting-paper on the spot, press it with a hot iron, occasionally moving the paper.

Remedy against the Effects of Ink when just spilled. — If the ink be spilled on a ruffle, or apron, &c., while you have it on, let one hold the spotted part between his two hands over a basin, and rub it, while another pours water gradually upon it; and let a whole pitcher full be used if necessary; or if the ruffle, apron, &c., be at liberty,

let it be dipped into a basin filled with water, and there squeezed and dipped in again, taking care to change the water in abundance every two or three squeezes. If the ink be spilled on a green table-carpet, it may immediately be taken out with a tea-spoon so entirely, that scarcely any water at all shall be wanted afterwards, provided it was only that instant spilled, as the down of the cloth prevents the immediate soaking-in of the ink, or of any other liquor (except oil); but if it has lain some time, be the time ever so long, provided the place be still wet, by pouring on it fresh clean water, by little and little at a time, and gathering it up again each time with a spoon, pressing hard to squeeze it out of the cloth into the spoon, you will at last bring it to its natural color, as if no such accident had happened.

WATERPROOF COMPOSITION FOR LEATHER.— Mutton or beef tallow 32 parts, linseed oil 32 parts, beeswax 24 parts, neats-foot oil 6 parts, lampblack 4 parts, litharge or red-lead 2 parts. The whole to be mixed by heat.

Waterproof Composition for Boots. — One pint of drying-oil, two ounces of yellow wax, two ounces of turpentine, and half an ounce of Burgundy pitch; melted carefully over a slow fire. If new boots or shoes are rubbed with this mixture, either in the sunshine, or at some distance

from the fire, with a sponge or soft brush, and the operation is repeated as often as they become dry till the leather is fully saturated, they will be impervious to wet, and will wear much longer, as well as acquiring a softness and pliability that will prevent the leather from ever shrivelling.

N. B. — Shoes or boots prepared in this manner ought not to be worn till perfectly dry and elastic: otherwise their durability would rather be prevented than increased.

To Prevent Snow-water or Rain from Penetrating the Soles of Shoes or Boots in Winter. — This simple and effectual remedy is nothing more than a little beeswax and mutton suet, warmed in a pipkin until in a liquid state. Then rub some of it lightly over the edges of the sole where the stitches are, which will repel the wet, and not in the least prevent the blacking from having the usual effect.

To Restore the Lustre of Gold or Silver Lace when Tarnished. — When gold or silver happens to be tarnished, the best liquor that can be used for restoring its lustre is spirits of wine: it should be warmed before it is applied to the tarnished spot. This application will preserve the color of the silk or embroidery.

To Clean Gilt Buttons or Toys. — Rub a little soap on a soft brush, dip the same in water, and gently rub the article you intend cleaning

for a minute or two; then wash the same clean off; wipe it, and place near the fire until it is perfectly dry; then burn a piece of bread, pound it to a fine powder, and brush your articles with it as you do silver goods with whitening.

To Prevent Gentlemen's Hats from being Spotted after a Shower of Rain. — If your hat is wet from rain, or any other cause, shake it out as much as possible; then with a clean linen cloth or handkerchief wipe the hat very carefully as well as you can, observing that in so doing you keep the beaver flat and smooth, in the same direction as it was first placed; then with your hands fix it in the original shape, and hang it at a distance from the fire to dry. A few hours after, or the next morning, lay the hat on a table, and brush it round and round several times with a soft brush in the proper direction, and you will find your hat not in the least injured by the rain.

If the gloss is not quite so high as you wish, take a flatiron, moderately heated, and pass the same two or three times gently over the hat; brush it afterwards, and it will be nearly as handsome as when first sent home from the shop.

Preventives against the Ravages of the Moth. — The usual preventives against the injury occasioned by the moth are cedar-wood and tobacco-leaves. A piece of the former put into a box, if sufficiently large to emit its peculiar

odor to whatever may be contained in it, will effectually preserve the cloth from injury; and it is well known, that in libraries where there are books with Russia leather, which is tanned with cedar, no moth or worm will corrupt. It is common to put cedar shavings and chips into boxes, &c., which answer just as well as the wood itself. Tobacco-leaves may be placed at certain intervals in the folds of a piece of woollen cloth; and it is sufficient to examine them once in six months, in order to renew the leaves if necessary.

An Easy Method of preventing Moths in Furs or Woollens. — Sprinkle the furs or woollen stuffs, as well as the drawers or boxes in which they are kept, with spirits of turpentine; the unpleasant scent of which will speedily evaporate on exposure of the stuffs to the air. Some persons place sheets of paper, moistened with spirits of turpentine, over, under, or between pieces of cloth, &c., and find it a very effectual mode.

To Preserve Furs, Woollens, &c. — Many woolen-drapers put bits of camphor the size of a nutmeg, in papers, on different parts of their shelves in their shops; and as they brush their cloths every two, three, or four months, this keeps them free from moths; and this should be done in boxes where furs, &c., are put.

A tallow-candle is frequently put within each muff when laid by.

To keep Moths, Beetles, &c., from Clothes. — Put a piece of camphor in a linen-bag, or some aromatic herbs, in the drawers, among linen or woollen clothes, and neither moth nor worm will come near them.

To Purify Wool Infected with Insects. — The process of purification consists in putting into three pints of boiling water a pound and a half of alum, and as much cream of tartar, which are diluted in twenty-three pints more of cold water. The wool is then left immersed in this liquor during some days, after which it is washed and dried. After this operation, it will no longer be subject to be attacked by insects.

CHINESE METHOD OF RENDERING CLOTH WATERPROOF. — To one ounce of white wax, melted, add one quart of spirits of turpentine, which, when thoroughly mixed and cold, dip the cloth in, and hang up to dry. By this cheap and easy method, muslin, as well as the strongest cloths, will be rendered impenetrable to the hardest rains, without the pores being filled up, or any injury done, when the cloth is colored.

NEW METHOD OF CLEANING SILKS, WOOLLENS, AND COTTONS. — The following receipt is recommended as a good method of cleaning silk, woollen, or cotton goods, without damage to the texture or color of the same. Grate raw potatoes to a fine pulp in clean water, and pass the liquid

matter through a coarse sieve into another vessel of water; let the mixture stand still till the fine white particles of the potatoes are precipitated; then pour the mucilaginous liquid from the fecula, and preserve the liquor for use. The article to be cleaned should then be laid upon a linen cloth on a table; and, having provided a clean sponge, dip the sponge into the potato liquor, and apply it to the article to be cleaned till the dirt is perfectly separated; then wash it in clean water several times. Two middle-sized potatoes will be sufficient for a pint of water. The white fecula will answer the purpose of tapioca, and make a useful, nourishing food, with soup or milk, or serve to make starch and hair-powder. The course pulp, which does not pass the sieve, is of great use in cleaning worsted curtains, tapestry-carpets, or other coarse goods. The mucilaginous liquor will clean all sorts of silk, cotton, or woollen goods, without hurting or spoiling the color: it may also be used in cleaning oil-paintings, or furniture that is soiled. Dirtied painted wainscots may be cleaned by wetting a sponge in the liquor, then dipping it in a little fine clean sand, and afterwards rubbing the wainscot with it.

To Clean Gold and Restore its Lustre. — Dissolve a little sal-ammoniac in urine; boil your soiled gold therein, and it will become clean and brilliant.

METHOD OF CUTTING GLASS BY MEANS OF HEAT. — Take a common wineglass, or any vessel you want to cut, and having heated a poker in the fire till it is almost redhot, but not quite apply it to the part where you wish the crack to begin; having held it upon the part for about a minute, remove the poker, and wet the place; the glass will immediately crack. Having now begun the crack, you may lead it in any direction by merely drawing the hot poker in the direction you want. This is extremely useful in many chemical experiments, where you are in want of proper apparatus. Glass tubes may be easily cut with a file.

TO BLEACH STRAW. — Straw is bleached by the vapors of sulphur, or a solution of oxalic acid or chloride of lime. It may be dyed with any liquid color.

WINDOWS, TO CRYSTALLIZE. — Dissolve epsom-salts in hot ale, or solution of gum arabic, wash it over the window, and let it dry. If you wish to remove any, to form a border or centre-piece, do it with a wet cloth.

WAX FOR BOTTLING. — Rosin, 13 parts; wax, 1 part; melt and add any color. Used to render corks and bungs air-tight by *melting the wax* over them.

WHITEWASH. — Slack half a bushel of lime with boiling water, and cover the vessel to retain

the steam. Strain the liquor, and add one peck of salt previously dissolved in warm water, 3 lbs. of rice boiled and ground to a paste, Spanish whiting, 8 oz.; glue, 1 lb.: mix and add hot water, 5 gallons; let it stand a few days, and apply hot. It makes a brilliant wash for inside or outside works.

METHOD OF RENDERING PUTRID WATER SWEET.—In the course of experiments which a gentleman was making, he had occasion to mix clay with a large quantity of water in a cistern. After the water and clay had remained thus for some weeks, he tasted the water before it should be thrown out, and found it sweet and well flavored. On this he stirred them, to find whether any putrid stench might rise from the bottom, but was agreeably surprised to find that the whole was equally sweet. He now resolved to keep it longer, in order to determine what effect time might have on the mixture; and, if my memory serves me right, repeated the tastings and stirrings for several months with equal success, though some part of the time was summer, during which he expected that the water would have become highly putrid. He communicated this discovery to the Society for the Encouragement of Arts, &c. It was referred to the committee of chemistry, with orders to make what experiments should seem to them requisite, to determine a

point so necessary to the welfare of numbers, as many diseases are known to take their rise from putrid water. The whole was confirmed by the report of the committee. Here is, then, a very easy means, whereby every cottager has it in his power constantly to use sweet and wholesome water. It is no more than mixing with water a quantity of common clay, sufficient to take off its transparency, so far as that the hands, held just under the surface, shall not appear through it.

NOTE. — This experiment has since been tried by mixing clay with putrid water in a close, salt-glazed earthen vessel. The water did not become sweet. The experiment must not be made in a close vessel, for the effect of ventilation in sweetening putrid water is well known. Now, water in a stone or lead cistern freely exposed to the air, and particularly if the growth of confervæ be prevented by excluding the light, will not become putrid in the greatest heat of this climate, unless it be mixed with a very uncommon proportion of some decomposable animal or vegetable substance. The diffusing of clay in water may, however, have some effect upon it; for it has been observed, that horses prefer the water of a clay-pit; and if there be any disengaged vitrolic acid in the clay, that acid may take off the putridity. Perhaps charred casks preserve water longer than any other method.

To Purify Water for Domestic and other Purposes. — This method is extremely simple, and consists in placing horizontally, in the midst of a common water butt, a false bottom, perforated with a great number of small holes. The butt being thus divided into two equal parts, the upper is filled with pieces of charcoal, which must be neither too large nor too small, thoroughly burned, light, and well washed. Immediately under the cock by which the water enters the butt, must be placed a small hollow cylinder, being merely to break the force of the water, and prevent it from falling upon the charcoal with such violence as to detach from it any particles of dirt, and wash them through into the lower receptacle: it is of little consequence of what material it is made. M. Siauve thinks that this contrivance might be made subservient to the interests of agriculture as well as domestic economy; and that it would be highly advantageous to provide water thus filtered for the cattle during the whole of dogdays, and particularly when the ponds and streams are infected by the rotting of hemp and flax.

Remark. — A very good filter may be made of charcoal, but it is comparatively expensive; and there is a patent for the only way the filter can be made to last. In the above receipt, if the charcoal is not in very fine powder, it will have

little effect in purifying the water: if it be, the charcoal will very soon choke from the quantity of mud deposited in it by the water; and the frequent renewals of charcoal, which would be necessary from the choking, would be found expensive. The contrivance could only be useful as a temporary means of ascertaining the power of the charcoal on the particular kind of water, with a view afterwards to procure a proper filter.

To Purify Water for Drinking. — Filter river-water through a sponge, more or less compressed, instead of stone or sand, by which the water is not only rendered more clean, but wholesome; for sand is insensibly dissolved by the water, so that in four or five years it will have lost a fifth part of its weight. Powder of charcoal should be added to the sponge when the water is foul or fetid. Those who examine the large quantity of terrene matter on the inside of tea-kettles, will be convinced all water should be boiled before drunk, if they wish to avoid being afflicted with gravel and stone, &c.

To Purify the Muddy Waters of Rivers or Pits. — Make a number of holes in the bottom of a deep tub; lay some clean gravel thereon, and above this some clean sand; sink this tub in the river or pit, so that only a few inches of the tub will be above the surface of the water; the

river or pit water will filter through the sand, and rise clear through it to the level of the water on the outside, and will be pure and limpid.

Method of Making Putrid Water Sweet in a Night's Time. — Four large spoonfuls of unslacked lime, put into a puncheon of ninety gallons of putrid water at sea, will, in one night, make it as clear and sweet as the best spring-water just drawn; but, unless the water is afterwards ventilated sufficiently to carbonize the lime, it will be a lime-water. Three ounces of pure unslacked lime should saturate 90 gallons of water.

Best Method of Purifying Water. — Take a common garden-pot, in the midst of which place a piece of wicker-work; on this spread a layer of charcoal four or five inches in thickness, and above the charcoal a quantity of sand. The surface of the sand is to be covered with paper pierced full of holes, to prevent the water making channels in it. This filter is to be renewed occasionally. By this process, which is at once simple and economical, every person is enabled to procure limpid water at a very trifling expense.

The Best Method of Obtaining Pure Soft Water for Medicinal Purposes without distilling it. — Place an earthen pan in the fields at a considerable distance from the smoke of any town, to catch the rain as it falls from the clouds. The

water should be put into perfectly clean bottles, and the corks well secured with wax; and, if the bottles are put into a cool place, the water will keep sweet for several years.

To Purify River or any other Muddy Water. — Dissolve half an ounce of alum in a pint of warm water, and stirring it about in a puncheon of water just taken from any river, all the impurities will soon settle to the bottom; and in a day or two it will become as clear as the finest spring-water.

Warm Water. — Warm water is preferable to cold water as a drink for persons who are subject to dyspeptic and bilious complaints; and it may be taken more freely than cold water, and consequently answers better as a diluent for carrying off bile, and removing obstructions in the urinary secretion in cases of stone and gravel. When water of a temperature equal to that of the human body is used for drink, it proves considerably stimulant, and is particularly suited to dyspeptic, bilious, gouty, and chlorotic subjects.

To Make Sea-Water fit for Washing Linen at Sea. — Soda put into sea-water renders it turbid: the lime and magnesia fall to the bottom. To make sea-water fit for washing linen at sea, as much soda must be put in it, as not only to effect a complete precipitation of these earths, but to render the sea-water sufficiently laxivial

or alkaline. Soda should always be taken to sea for this purpose.

Proper Method of Making Toast and Water, and the Advantages resulting therefrom. — Take a slice of fine and stale loaf-bread, cut very thin, (as thin as toast is ever cut); and let it be carefully toasted on both sides, until it be completely browned all over, but nowise blackened or burned in any way. Put this into a common deep stone or china jug, and pour over it from the teakettle as much clean boiling water as you wish to make into drink. Much depends on the water being actually in a boiling state. Cover the jug with a saucer or plate, and let the drink cool until it be quite cold; it is then fit to be used: the fresher it is made the better, and of course the more agreeable. The above will be found a pleasant, light, and highly diuretic drink. It is peculiarly grateful to the stomach, and excellent for carrying off the effects of any excess in drinking. It is also a most excellent drink at meals, and may be used in the summer time if more agreeable to the drinker.

To Make a Vessel for Filtering Water. — Where water is to be filtered in large quantities, as for the purposes of a family, a particular kind of soft spongy stones, called filtering-stones, are employed. These, however, though the water percolates through them very fine, and in suf-

ficient quantity at first, are liable to be obstructed in the same manner as paper, and are then rendered useless. A better method seems to be, to have a wooden vessel lined with lead, three or four feet wide at top, but tapering so as to end in a small orifice at the bottom. The under part of the vessel is to be filled with very rough sand or gravel, well freed from earth by washing; over this, pretty fine sand may be laid to the depth of twelve or fourteen inches, but which must likewise be well freed from earthy particles. The vessel may then be filled well up to the top with water, pouring it gently at first, lest the sand should be too much displaced. It will soon filter through the sand, and run out at the lower orifice exceedingly transparent, and likewise in very considerable quantities. When the upper part of the sand begins to be stopped up, so as not to allow a free passage to the water, it may occasionally be taken off, and the earthy matter washed from it, when it will be equally serviceable as before.

The Turkish Method of Filtering Water by Ascension. — They make two wells, from five to ten feet, or any depth, at a small distance, which have a communication at the bottom. The separation must be of clay well beaten, or of other substances impervious to water. The two wells are then filled with sand and gravel. The open-

ing of that into which the water to be filtered is to run must be somewhat higher than that into which the water is to ascend; and this must not have sand quite up to its brim, that there may be room for the filtered water; or it may, by a spout, run into a vessel placed for that purpose. The greater the difference is between the height of the two wells, the faster the water will filter; but the less it is the better, provided a sufficient quantity of water be supplied by it. This may be practised in a cask, tub, jar, or other vessel. The water may be conveyed to the bottom by a pipe, the lower end having a sponge in it, or the pipe may be filled with coarse sand. It is evident that all such particles, which by their gravity are carried down in filtration by descent, will not rise with the water in filtration by ascension. This might be practised on board ships at little expense.

To Prevent the Fatal Effects of Drinking Cold Water, or Cold Liquors of any Kind, in Warm Weather, or when Heated by Exercise, or Otherwise. — Avoid drinking whilst warm, or drink only a small quantity at once, and let it remain a short time in the mouth before swallowing it; or wash the hands and face, and rinse the mouth, with cold water before drinking. If these precautions have been neglected, and the disorder incident to drinking cold water

has been produced, the first, and in most instances, the only remedy to be administered is sixty drops of liquid laudanum in spirit and water, or warm drink of any kind. If this should fail of giving relief, the same quantity may be given twenty minutes afterwards. When laudanum cannot be obtained, rum and water, or warm water, should be given. Vomits and bleeding should not be used without consulting a physician.

To Prevent the Effects of Excessive Cold. — Persons are in danger of being destroyed by it when they become very drowsy, or are affected with general numbness or insensibility of the body. As the cold which proves fatal generally affects the feet first, great care should be taken to keep them as warm as possible; by protecting them, when exposed to cold, with wool or woollen socks within the shoes or boots, or with large woollen stockings drawn over them, or, when riding, with hay or straw wrapped round them; by keeping up a brisk circulation in the blood-vessels of the feet, which will be best preserved by avoiding tight boots or shoes, by moving the feet constantly, or when this is impracticable, from a confined situation, and two or more persons are exposed together, by placing their feet, without shoes, against each other's breasts.

Where the cold has produced apparent death,

the body should be placed in a room without fire, and rubbed steadily with snow, or cloths wet with cold water, at the same time that the bellows is directed to be applied to the nose, and used as in the case of drowning. This treatment should be continued a long time, although no signs of life appear; for some persons have recovered who appeared lifeless for several hours. When the limbs only are affected by the cold, they should be rubbed gently with snow, or bathed in cold water with ice in it, until the feeling and power of motion returns, after which the bathing, or the rubbing with snow, is to be repeated once every hour, and continued a longer or shorter time as the pains are more or less violent.

To Prevent Danger from Exposure to the Excessive Heat of the Sun. — Affections from this cause, or strokes of the sun, so called, may be suspected when a person exposed to its rays is seized with a violent headache, attended with throbbing or giddiness, followed with faintness and great insensibility, heat and dryness of the skin, redness and dryness of the eyes, difficulty of breathing, or entire inability of speaking or moving. To guard against these dangerous effects of heat, it will be proper to avoid labor, or violent exercise, or exposure to the rays of the sun, immediately after a hearty meal; to avoid drinking spirits of any kind. Small beer, vine-

gar and water sweetened with sugar, or any thin, cooling beverage, are alone proper for persons exposed to the excessive heat of the sun. Should the symptoms increase, it will be proper to remove the affected person into a cool place; to open the garments, particularly about the neck and breast, and, if the pulse beat forcibly, to bleed immediately, the quantity proportioned to the strength of the pulse: but, should the pulse be weak, bleeding must not be performed. The feet and legs, and even the lower portion of the body, may be placed in cold water. Should, however, this process prove ineffectual, linen cloths wet with cold water, or water and vinegar, may be applied to the temples and over the whole head, and draughts of vinegar and water sweetened may be freely drank.

The Dangerous Effects of Noxious Vapors from Wells, Cellars, Fermenting Liquors, &c., may be Prevented. — By procuring a free circulation of air, either by ventilators, or opening the door or windows where it is confined, or by changing the air, by keeping fires in the infected place, or by throwing in stone-lime recently powdered.

When a person is apparently dead from the above-mentioned cause, the first thing to be done is to remove the body to a cool place in a wholesome air; then let the body be stripped, and let

cold water be thrown from buckets over it for some time. This is particularly useful in cases of apparent death from drunkenness. Let the treatment now be the same as that for drowned persons.

BURNING OF FEMALES BY THEIR CLOTHES HAVING CAUGHT FIRE. — A bystander, or the first person who is present, should instantly pass the hand under all the clothes, to the sufferer's shift, and raise the whole together, and closed over the head, by which the flame will indubitably be extinguished; and this may be effected in a few seconds, that is, in the time that a person can stoop to the floor and rise again: and no other method can be so ready, expeditious, and effectual. The sufferer will facilitate the business, and avoid serious injury, by covering her face and bosom with her hands and arms. Should it happen that no person is nigh to assist her, she may in most cases, if she has presence of mind, relieve herself by throwing her clothes over her head, and rolling or lying upon them. The females and children in every family should be told and shown flame always tends upwards, and that, consequently, while they remain in an upright posture, with their clothes on fire (it usually breaking out in the lower part of the dress), the flames, meeting additional fuel as they rise, become more powerful and vehement in proportion, whereby

the bosom, face, and head, being more exposed than other parts to this intense heat, or vortex of the flames, must necessarily be most injured: therefore, in such situation, when the sufferer is alone, and incapable, from age, infirmity, or other cause, of extinguishing the flames by throwing the clothes over her head, as before directed, she may still avoid much torture, and save life, by throwing herself at full length on the floor, and rolling herself thereon. By this method, the flames may possibly be extinguished; their progress will infallibly be retarded; the bosom, face, and head preserved from injury, and an opportunity afforded for assistance.

PAINTERS' DEPARTMENT.

Flexible Paints. — Boil 1½ lb. yellow soap with 1 gallon of water, and mix while hot with 1¼ cwt. of oil paint; used to paint on canvas.

To Mix Paints. — For inside work, use boiled oil with turpentine and a little driers; for out-door work, use but little turpentine. Turpentine assists the drying of paints, but spoils the gloss. In flatted white, this is of no importance, as it is required dull. The best driers are those ready mixed, called patent driers, which may be obtained at any color-shop. All paints are ground

in raw linseed oil, ready for mixing, and may be so purchased as ground paints. Wood-work, &c., must be sized before painting, or size must be added to the paint at the time of using, otherwise it will not dry.

Drying-Oils.—To Prepare for Carriage, Wagon, and Floor Painting.—Take linseed oil, 1 gal. and add gum shellac 2 lbs., litharge, ½ lb., red lead, ¼ lb., umber 1 oz. Boil slowly 2 or 3 hours, until the gums are dissolved. Grind your paints in this (any color), and reduce with turpentine. Yellow ochre is used for floor-painting. This dries quick, and wears exceedingly well.

Drying-Oil, equal to the Patent Dryers.—Linseed oil 2 gallons; and add litharge, red lead, and umber, of each 4 ounces, and sugar of lead and sulphate of zinc of each 2 ounces. Boil until it will scorch a feather. Use this or either of the others, in quantity to suit the object of the work being done.

Japan Dryer of the best Quality.—Take linseed oil 1 gallon, and put into it ¾ lb. of gum shellac. Litharge and burned turkey, of each ½ lb., red lead ½ lb., and sugar of lead 6 ounces. Boil in the oil until all are dissolved, which will require about 4 hours; remove from the fire, and add spirits of turpentine 1 gallon; and it is done.

Another Dryer is made by taking linseed oil 5 gallons, and adding red lead and litharge of each

3½ lbs., raw umber, 1¼ lbs., sugar of lead and sulphate of zinc of each ½ lb.; pulverize all the articles together, and boil in the oil until dissolved; when a little cool, add turpentine 5 gallons, or make it of a proper consistence.

Oil Paint. To Reduce with Water. — Take gum shellac 1 lb.; sal soda ½, water 3 pints; put all into a suitable kettle, and boil, stirring till all is dissolved. If it does not all dissolve, add a little more sal soda; this, when cool, can be bottled for use. If it smells bad when opened, it does not hurt it. Directions for using. — Mix up 2 quarts of oil paint as usual, except no turpentine is to be used, any color desired. Now put one pint of the gum-shellac mixture with the oil paint when it becomes thick, and may be reduced with water to a proper consistence to lay on with a brush. Two coats will be required; and with the second coat sand may be applied if desired.

Another Method. — Take soft water 1 gallon, and dissolve in it pearlash 3 oz.; bring to a boil, and slowly add shellac 1 lb.; when cold it is ready to be added to oil paint, in equal proportions. The expense of these is only one third of oil paint.

Paint Skins. — To Save and Reduce to Oil. — Dissolve sal soda ½lb. in rain water 1 gal. The skins that dry upon the top of paint, which has been left standing for any length of time, may be

made fit for use again by covering them with the sal-soda water and soaking them therein for a couple of days; then heat them, adding oil to reduce the mixture to a proper consistence for painting, and straining. Painters who are doing extensive business will save many dollars yearly by this simple process.

Valuable Process for Painting New Tin Roofs. — Scrape off the rosin as clean as possible, and sweep the roof. Now, dissolve sufficient sal soda in a bucket of water to make it quite strong; wash the roof with the soda water, and let it remain until it is washed off by the rains, or after a few hours, washing off with clean water, rinsing well. When dry, give it one coat of pure Venetian red, mixed with one third boiled and two thirds raw linseed oil; the second may be any color desired. The soda water dissolves the rosin remaining after scraping, destroys the greasy nature of the solder and of the new tin, so that there will be a sufficient "grip" for the paint to adhere firmly. The pure Venetian red is one of the most durable paints for metallic roofs, but is often rejected on account of its color. The above mode of painting will set aside this difficulty.

Fire-proof Paint for Roofs, &c. — Slack stone lime by putting it into a tub, to be covered to keep in the steam. When slacked, pass the

powder through a fine sieve; and to each 6 quarts of it add 1 quart of rock salt, and water 1 gallon; then boil and skim clean. To each 5 gallons of this add pulverized alum 1 lb., pulverized copperas ½ lb., and still slowly add powdered potash ¾ lb.; then fine sand or hickory-ashes 4 lbs. Now add any desired color, and apply with a brush: looks better than paint, and is durable as slate. It stops small leaks in roofs, prevents moss, and makes it incombustible, and renders brick impervious to wet.

Water-proof, Oil Rubber Paint. — Dissolve about 5 lbs. of india-rubber in 1 gal. of boiled linseed-oil, by boiling. If this is too thick, reduce with boiled oil; if too thin, use more rubber. Especially applicable to cloth, but valuable for any other material.

Frosting Glass. — The frosty appearance of glass, which we often see where it is desired to keep out the sun, or "man's observing eye," is done by using a paint composed as follows: Sugar of lead well ground in oil, applied as other paint; then pounced, while fresh, with a wad of batting held between the thumb and finger; after which it is allowed to partially dry; then, with a straight-edge laid upon the sash, you run along by the side of it a stick sharpened to the width of line you wish to appear in the diamonds, figures, or squares into which you choose to lay it off.

Crystal Painting (Oriental).—The colors used are Prussian blue, Crimson, White, and Yellow lakes, Rosseau, White zinc, and No. 40 Carmine. Druggists keep them in small tubes. They must be mixed with Demar-varnish, rubbing with a table-knife or spatula upon glass.

Directions for making various Shades or Compound Colors.—Proportion them about as follows: for green, $\frac{1}{8}$ blue, $\frac{7}{8}$ yellow; purple, $\frac{1}{8}$ blue, $\frac{7}{8}$ crimson; orange, $\frac{1}{4}$ crimson, $\frac{3}{4}$ yellow; wine color, $\frac{1}{12}$ blue, $\frac{11}{12}$ crimson; pink, add a little crimson to white zinc; brown, mix a dark purple, and add yellow according to the shade desired; black, add crimson to dark green until the shade suits you. To make the compound colors lighter, add the lightest color in it, and make darker by using the darkest color in the compound. For backgrounds, white, zinc white, or pink white, with turpentine and boiled linseed-oil and Demar-varnish; black, lampblack with asphaltum-varnish and boiled linseed-oil and turpentine, in equal quantities. Flesh-color, white zinc with a small portion of crimson and chrome-yellow to suit. For sketching out the figures on the ground-work, use a little lampblack with asphaltum-varnish, turpentine, and boiled linseed-oil to make it flow freely.

Directions for Painting.—Make your glass perfectly clean, and place it over the picture you

wish to copy; then, with the sketching preparation, trace on the glass all the lines connected with the figures of the picture which you are copying; being careful to sketch vines very distinct. When the sketching is done and dry, proceed to lay on the background, inside of the sketched lines, until all the sketching is closed; and, when the background is dry, proceed to put on the colors; commencing with green, if any in the figures, ending with yellow. When the colors are all laid, put the background upon the balance of the glass; and when all is dry, have tin-foil, crumpled very much, in your hand, and then partly straightened out, and lay it over the figure, and keep in its place by pasting paper over it in such a manner that it cannot slip away, letting the paper cover the whole back of the glass; or a wood back can be placed behind the glass, and all is complete, and will look well or ill, according to the practice and taste of the painter.

Fancy Green. — Unscorched, pulverized coffee put into the white of an egg, will, in twenty-four hours produce a very beautiful green for fancy painting, — proof of poison in unbrowned coffee.

Sketching-Paper, to prepare. — Bleached linseed-oil, turpentine, and balsam of fir, equal parts of each; mix. Have a frame of a little less size than the paper to be prepared, and apply paste or

thick gum solution to one side and the outer edge of it; wet the paper in clean water, and lay it upon the frame, and press it down upon the pasted side of the frame, and turn the outer part of the paper over the outside of the frame upon the paste there, which holds it firm; and when it becomes dry it is tight like a drumhead. Whilst in this condition, with a brush saturate it with the above mixture: three or four coats will be needed, giving each one time to dry before applying the next. Only sufficient is needed to make it transparent, so that when you wish to sketch a rose, or other flower, or leaf, from nature, the paper can be placed upon it, like the glass in the "Oriental Painting;" then trace the lines, and finish it up in the same way also, as there described, or that you may see through it in taking perspective views of distant scenery.

Door Plates, to make. — Cut your glass the right size, and make it perfectly clean with alcohol or soap; then cut a strip of tinfoil sufficiently long and wide for the name, and with a piece of ivory or other burnisher rub it lengthwise to make it smooth; now wet the glass with the tongue (as saliva is the best sticking substance), or, if the glass is very large, use a weak solution of gum arabic, or the white of an egg in half a pint of water, and lay on the foil, rubbing it down to the glass with a bit of cloth, then also with the bur-

nisher. The more it is burnished the better it will look. Now mark the width on the foil which is to be the height of the letter, and put on a straight-edge, and hold it firmly to the foil, and with a sharp knife cut the foil, and take off the superfluous edges; then either lay out the letters on the back of the foil (so they shall read correctly on the front), by your own judgment or by means of pattern-letters, which can be purchased for that purpose; cut with the knife, carefully holding down the pattern or straight-edge, whichever you use; then rub down the edge of all the letters with the back of the knife, or edge of the burnisher, which prevents the black paint, or japan, which you next put over the back of the plate, from getting under the foil; having put a line above and one below the name, or a border around the whole plate, or not, as you bargain for the job. The japan is made by dissolving asphaltum in just enough turpentine to cut it; apply with a brush, as other paint, over the back of the letters and over the glass, forming a background. This is used on the iron frame of the plate also, putting it on when the plate is a little hot; and as soon as it cools, it is dry. A little lampblack may be rubbed into it if you desire it any blacker than it is without it. If you choose, you can remove every other one of the foil letters after the japan is dry, and paint in its place, red, blue, or other

colored letters, to make a greater variety out of which for your customers to choose as the one they desire you to follow in getting up their plate. Tinfoil, being thicker than silver or gold foil, will not show the paint through it in little spots as they do; but, if these foils are desired to be used, you can put on two thicknesses by proceeding as follows, which prevents the paint from showing through them. Lay on the first coat of these foils the same as directed for the tinfoils, and smooth it down by rubbing on the front of the glass; then breathe on it until a dampness is caused; now put on the second, and burnish well, having paper over it; but, instead of the knife to cut around your pattern or straight-edge, take a sharp needle; using the point, make lines through the leaf, around the pattern letter or straight-edge; then with a bit of jeweller's wood, or other hard wood, made to a narrow and sharp point, remove all up to the lines, both in and around the letters, as these foils have not the substance to peel off as the tinfoil, japanning over them the same as the other letters. Paper letters can be cut out of advertisements, and put on by wetting the glass the same as for foil, japaning over them, and, when dry, removing them, and painting the places out of which they came with various colors as desired, as the japan will not peel, but makes a sharp and distinct edge;

and these painted letters look well in this way; and by taking advantage of printed letters, saves the skill and time necessary to form them. Set your glass in the frame with putty, and put a thin coat of putty over the whole plate, as the plaster-of-Paris filling which is generally used soon eats out the japan or paint, and spoils the job. Persons with any ingenuity can very soon make a nice plate if they will pay attention to the above rules, as well as to pay five dollars for instructions. For practice is necessary to perfection, even if you do pay for the lesson. Shellac-varnish colored with lampblack is good in place of the japan.

Etching and Grinding upon Glass for Signs or Side-Lights. — Take the asphaltum-varnish, and with a small pencil lay out the name or design, not putting the varnish upon the letters, but around it, leaving the space which the letters of the sign are to occupy free and clear. The varnish is to cover the black surface in the sign or name. When the varnish is dry, have some melted beeswax, and as it begins to cool, with a knife take some of it up, and scrape it off upon the edge of the glass being etched, so as to form a wall to hold the acid upon the glass while etching; now lay the glass flat, and pour a little fluoric acid on to the name, letter, or design thus prepared, and let it remain on for one hour, not

allowing the glass to be touched or moved for that time; then pour off the acid into your bottle, and it can be used again. The asphalt prevents the acid from etching or eating only the letter, and the wax wall prevents the acid from flowing off and being wasted. When you pour off the acid, wash the glass with a little water, scrape off the wax, and remove the asphalt with a little turpentine, and all is done. The above directions are for plain glass; but, if you desire, you can gild the letter which is etched (eat-out); or you can gild all except the letter, if desired, as described in the recipe for "Door Plates;" or you can grind the surface of the glass as described under the head of "Glass Grinding," for signs, shades, &c. This applies equally well to "Flashed," or what is called "Stained Glass," worked in the same way as above, putting the design or letters upon the stained side, which eats away the color, and leaves the design clean and white; or you can etch only a part of the way through the stain, which shows up the letter or flower lighter in color than the rest of the glass, which makes it look very beautiful for side-lights in halls, lamps, druggists' windows, &c. There are two kinds of colored glass, one is called "Pot-metal," the other "Flashed." The pot-metal glass is made by mixing the stain or coloring with the melted glass while making, and consequently is alike all

the way through. The stained glass is made by applying the color to one side of the glass after it is made, then applying sufficient heat to allow it to take hold of the glass only: the color is all on one side; this is the kind desired. If it is desired to etch upon druggists' or other jars, it can be done by preparing the name to be put on, with the varnish and wax; then have a lead box without top or bottom, in shape on the lower edge to fit the shape of the jar, and press this down upon the wax to make it tight; then pour your acid into the box, which keeps it in its place the same as the wax does on a flat surface. Ornaments or flourishes can be put on as well as letters. The old plan was to cover the whole surface with wax, then remove it from the letter, which was very slow and troublesome; and if a bit of wax remained upon the bottle, the acid could not cut where the wax remained, then to hold the glass over the fumes of the acid instead of putting the acid upon the glass.

Glass Grinding for Signs, Shades, &c.— After you have etched a name or other design upon uncolored glass, and wish to have it show off to better advantage, by permitting the light to pass only through the letters, you can do so by taking a piece of flat brass sufficiently large not to dip into the letters, but pass over them when gliding upon the surface of the glass; then

with flower of emery, and keeping it wet, you can grind the whole surface, very quickly, to look like the ground glass globes often seen upon lamps, except the letter, which is eaten below the general surface. Whole lights of glass can be ground in this way, instead of frosting, or the frosting can be done here in place of the grinding, if preferred.

Fluoric Acid, to make for Etching Purposes. — You can make your own fluoric (sometimes called hydro-fluoric) acid by getting the fluor or Derbyshire spar, pulverizing it, and putting all of it into sulphuric acid, which the acid will cut or dissolve. Druggists through the country do not keep this acid, generally; but they can get it in the principal cities, and furnish it for about seventy-five cents per ounce, and that ounce will do at least fifty dollars' worth of work. It is put up in gutta-percha bottles, or lead bottles, and must be kept in them when not in use, having corks of the same material. Glass, of course, will not hold it, as it dissolves the glass, otherwise it *would not* etch upon it.

Porcelain Finish, very hard and white, for Parlors. — To prepare the wood for the finish, if it be pine, give one or two coats of the "varnish," transparent for wood, which prevents the pitch from oozing out, causing the finish to turn yellow; next give the room at least four coats

of pure zinc, which may be ground in sufficient oil to enable it to grind properly; then mix to a proper consistence with turpentine or naphtha. Give each coat time to dry. When it is dry and hard, sandpaper it to a perfectly smooth surface, when it is ready to receive the finish, which consists of two coats of French zinc ground in, and thinned with Demar-varnish, until it works properly under the brush. The author of this recipe says, that, if the French zinc in varnish cannot be procured, the varnish may be whitened with zinc ground in oil as a very good substitute; being careful not to use too much, in which case it will diminish the gloss, and be more liable to turn yellow. A little turpentine or naphtha may be added if too thick to work well; but in no instance should oil be used to thin the paint. This finish, if properly applied, is very beautiful, and, although purely white, may be kept clean more easily than other kinds of painting by simply using a dusting-brush; or, if soiled, a sponge wet in cold, soft water without soap is the better way. N. B. — Not a particle of white-lead should be used where this finish is to be applied, either in the priming or any subsequent coats, or a brush used that has been in lead, without being thoroughly cleansed, as a yellow hue will soon present itself, which is caused by a chemical change taking place between the lead and zinc.

PAINTERS' ECONOMY IN MAKING COLORS. — 1. *Prussian Blue.* — Take nitric acid, any quantity, and as much iron-shavings from the lathe as the acid will dissolve; heat the iron as hot as can be handled with the hand; then add it to the acid in small quantities as long as the acid will dissolve it; then slowly add double the quantity of soft water that there was of acid, and put in iron again as long as the acid will disolve it. 2d. Take prussiate of potash, dissolve it in hot water to make a strong solution, and make sufficient of it with the first to give the depth of tint desired, and the blue is made. Or,

2. *A very passable Prussian Blue* is made by taking sulphate of iron (copperas) and prussiate of potash, equal parts of each, and dissolving each separately in water, then mixing the two waters.

3. *Chrome Yellow.* — 1st, Take sugar of lead and Paris-white, of each 5 lbs.; dissolve them in hot water. 2d, Take bichromate of potash, 6½ oz., and dissolve it in hot water also, each article to be dissolved separately; then mix all together, putting in the bichromate last. Let stand 24 hours.

4. *Chrome Green.* — Take Paris-white, 6½ lbs.; sugar of lead and blue vitriol, of each 3½ lbs.; alum 10½ oz.; best soft Prussian blue and chrome yellow, of each 3½ lbs. Mix thoroughly

while in fine powder, and add water 1 gal., stirring well, and let stand 3 or 4 hours.

5. *Green, Durable and Cheap.* — Take spruce yellow, and color it with a solution of chrome yellow and Prussian blue, until you give it the shade you wish.

6. *Paris Green.* — Take unslacked lime of the best quality, slack it with hot water; then take the finest part of the powder, and add alum-water, as strong as can be made, sufficient to form a thick paste; then color it with bichromate of potash and sulphate of copper, until the color suits your fancy. N. B. — The sulphate of copper gives the color a blue tinge; the bichromate of potash, a yellow. Observe this, and you will never fail.

7. *Another Method.* — Blue vitriol 5 lbs., sugar of lead 6¼ lbs., arsenic 2½ lbs., bichromate of potash 1½ oz.; mix them thoroughly in fine powder, and add water, 3 pints, mixing well again, and let stand 3 or 4 hours.

8. *Pea Brown.* — 1st., Take sulphate of copper, any quantity, and dissolve it in hot water. 2d, Take prussiate of potash, dissolve it in hot water to make a strong solution; mix of the two solutions, as in the blue, and the color is made.

9. *Rose Pink.* — Brazil wood, 1 lb., and boil it for 2 hours, having 1 gal. water at the end; then strain it, and boil alum, 1 lb., in the same water

until dissolved; when sufficiently cool to admit the hand, add muriate of tin, ¾ oz. Now have Paris-white, 12½ lbs., moisten up to a salvey consistence, and when the first is cool stir them thoroughly together; let stand 24 hours. When any of the above mixtures have stood as mentioned in their respective recipes, all that is necessary is to drain off the water by placing the preparations into muslin bags for that purpose, and then exposing the mixture to the air, to dry for use.

Glass, stone, or wood vessels only should be used, as the acids soon work upon iron, tin, copper, &c., giving you a tinge not desired in the color; and always observe, that, if water is to be mixed with strong acids, it must be added slowly, especially if in light vials, or you will break the vessel by means of the great heat which is set free by the combination.

Painters can use their own judgment about making these colors; but, if they do not do it for profit, there will be pleasure in testing them, even in vials-full only, as the chemical action is just as fine in small as in large quantities.

Putty, to make. — Whiting, well sifted, is mixed with boiled oil to a paste, which is then chopped in a putty-mill until well mixed. As soon as part of the putty is ready, it is withdrawn, and more paste added. When it is desired red,

some Spanish brown is mixed with the paste to color it.

Process for Preserving the Canvas in Oil Paintings, and Repairing Defects. — 1. Separate the canvas from the panel, or straining frame, and lay it on a smooth table, with the painting downwards, and nail it securely.

2. Take a piece of tinfoil larger than the canvas, place it on a very smooth table, and make the tinfoil as smooth as possible with your hand. Then melt some Salisbury glue in the same manner as for cabinet-makers' use.

3. Warm the tinfoil before the fire, and lay it again on the table; then wash it over with the glue, and place it on the back of the canvas, secured as above, as quick as possible; smooth it perfectly with the hand, and let it remain in a warm room to dry.

4. To repair the cracks of the canvas in an old oil painting, lay it on a very smooth table, the subject downward; then, with a brush or fine linen, cover the canvas with some melted white wax, and with a warm, flat smoothing-iron, rub over the wax, and press it hard, which will draw the colors up to the canvas.

5. To varnish the painting, clean the picture well, take some white wax and spirits of turpentine, with a small quantity of linseed-oil and sugar of lead; melt them over the fire; dip a

fine linen rag therein, with which wash your painting; then, with a fine linen rag, rub over the varnish till it begins to be polished; let it remain till next day, and then rub it over with a fine, waxed cloth, and afterwards with a soft linen cloth, using them alternately, by which means the painting will receive a very fine polish. By the above means, the cracks and small holes in old paintings may be closed and repaired, and a coat of tinfoil may be afterwards glued on the back of the canvas, as above mentioned.

INDOOR PLANTS, AND HOW TO GROW THEM.

This little essay is intended to supply a want much felt by persons living in our cities and larger towns, who have not the opportunity for gratifying their tastes by cultivating a nice garden out of door in the country, where they have plenty of room and land, and who are hindered from enjoying the gratification of their tastes by imaginary obstacles, such as places in which to grow their plants, the difficulties in getting a collection, and the expense. But these hinderances exist only in imagination; and it is astonishing to find how easily and cheaply a lady

can keep her house supplied with a good display of flowers. Many well-sounding and plausible reasons are given against making the attempt, such as the badness of the air, the want of light, of space, or of time, too much smoke, and too great expense. But, although these are hinderances, they do not make the thing impossible. The bad air and smoke are indeed to be guarded against; but glass, while it excludes the smoke, renders the air both still and moist, and it will not be difficult to grow the most sensitive and delicate of our plants under its friendly shade. Want of space need hardly be an objection; for, if there be not room for many plants, there may yet be space for some. A greenhouse, also, is not essential, for if there are any windows looking towards the south, there can plants be easily reared. We do hear of greenhouses, however, upon the roofs of houses; and many modern dwellings have something of the kind opening into a drawing-room, or into a little breakfast-room. Glass cases, also, fixed outside windows, and on landing-places, are useful and pretty substitutes; and even small tables covered with bell-glasses often produce a healthier set of plants than many greenhouses can boast of.

The time required for attending to these pretty things may be to many an obstacle; but this, I think, is a very exaggerated idea. Opening a

window, and giving a supply of water, and sometimes an hour or two to potting and re-potting, or to planting cuttings, and sowing seeds, is generally all the attention which house-plants require; indeed, one half-hour daily, well employed, would amply suffice for all such gardening duties.

The cost may, at first sight, appear a serious consideration; but it is only so in the case of those who will do nothing cheaply: and knowing, as I do by experience, what a beautiful display may be kept up throughout the year for a sum within fifty dollars, I cannot believe many persons who really care for flowers will on this account be withheld from having them. Indeed, I fully believe that eight or nine dollars, well laid out, would suffice to produce a far more beautiful and tasteful effect than is accomplished by a sum ten times larger by the gardener who supplies many of our residents with relays of flowers for their stands.

Plants also adapt themselves curiously to the places in which they grow, mingling their branches and intwining themselves gracefully together, and turning invariably towards the light. They often thus attain a degree of natural luxuriance and grace which no art could give them. To those who adopt this guide for the management of an indoor garden, I would recommend, that

having first fitted up any space they have for flowers, with the evergreens required for its permanent decoration, they should note down the plants they wish to grow each month; varying of course, the kind and number chosen, according to the amount of room, and to the means of providing light, which they have at their disposal. It is important to have a fixed plan, in order that the plants may be in harmony with each other and form a well-assorted group, and also that the lady-gardener may not be liable to find herself at one time overstocked with favorite plants in blossom, and at another time in a state of comparative destitution.

The success of the whole arrangement, whether as regards conservatory, miniature greenhouse, plant-stand, or hanging-garden, depends so much, however, upon the solid background of green foliage which is at first provided, that special attention to the instructions given at the commencement of the indoor calendar are absolutely necessary for the attainment of this object.

Means Required for Growing Plants. — 1. There are always some plants which are very difficult to manage without some means of heating; indeed, this consideration keeps back many from becoming flower-cultivators. They do not know how very easily the heat required may be obtained; and thus, under a general dread of ex-

pense, a horror of stoves and flues, inability to bring in hot-water pipes, and other imaginary difficulties, they regard the attempt as hopeless.

It would hardly be believed by those who have never tried, what great success can be achieved, even on the smallest scale, in forcing, striking cuttings, raising seeds, &c., as well as bringing on the already-established plants.

2. When a tolerable heat can be kept up, plants usually grow extremely quick. A very few days often are sufficient to bring them out, when ready to break before. The succession of bulbs, for instance, is so rapid, that, long before one set has faded, another is ready to take its place. Very small pots are the best, in many respects, for flowering plants, and particularly for bulbs: so that during the winter months, in which the conservatory and stands depend so much on the supply from the forcing-case, one case only three feet long by eighteen inches wide, and as many inches high, is amply sufficient to turn out from a dozen and a half to two dozen plants at once; a new set succeeding in about from seven to ten days more. Often, indeed, three days is all they require to open their flowers, and acquire their deep color and sweet scent; which seems strangely dependent often upon a little warmth.

Allowing for the many plants which will blossom freely if merely secured from frost

elsewhere, it is evident that one such case as this (or two such cases, should the demand for flowers be very large) would be quite sufficient to keep up an abundant display. I shall be more exact, and better understood, if I simply describe my own forcing-case, and mention at the same time how it is intended to be employed. My case is three feet long by eighteen inches high and wide, lined with zinc; and contains a boiler two inches deep, which fits rather loosely into the outer trough or box of six inches' depth, which is destined, when duly provided with silver sand, to contain the plants for forcing. The boiler is filled from a pipe passing through the wood-work at one end; and there is also a small brass cock for drawing the water off. A very small pipe inside, about two inches long, provides for the due escape of the air, without which, of course, the case could not be filled or emptied. When the escape of steam is too great, a cork puts a stop to that; but the cork must be taken out before refilling. The case I am now describing can be used entirely for forcing, or, when not wanted for that purpose, it is in itself a charming miniature conservatory.

It is a welcome consideration that these cases answer so excellently for both purposes, accordingly as their boilers (which may be taken out) are or are not in use. The temperature within the case in summer, when nearly closed, varies, at

will, from that of a warm moist stove to that of a greenhouse, or even of a cool shady place, if needed; and the beauty and long continuance of the flowers in it, while protected from dust, from extreme dryness, and from draughts of air, is really wonderful. The ends, sides, and top of my cases are each formed of one large pane of glass; the top and one side being separately framed, so as to take in and out, in order to give greater facility both for cleaning and arranging the plants within. Small brass buttons fix the glazed panels in their place; and a hook attached to the upper part catches the side, and retains it, when desirable, in such a position as to leave it about one or two inches open. I very seldom have mine entirely closed, except at night; and, when containing plants in blossom, the entire front panel is often kept out all day. The wood-work being extremely slight, these cases are very ornamental; and they can be made of any wood, or painted any color (hard wood of any kind will do). They should not be veneered, as the dampness would soon blister or remove the veneer. In spring, which is the principal time when artificial heat is needed, the zinc case or boiler being filled with boiling water both night and morning, the heat varies from 55° to 75°; indeed it could easily be had at 90°, especially when the silver sand is a little moist: and the soil in the pots effectually retains the

heat, often feeling quite warm even four and twenty hours after the boiler has been filled. Another case of mine is similar, except in size. Its frame is four feet long by two feet high and two feet wide, and fitting, like the other one, on a trough of about six inches deep. It is very useful to have a woollen cover to place over these cases on any particularly cold night, to preclude the escape of heat, and prevent the great condensation of steam upon their glasses, as the dripping of any moisture is very injurious to the plants it falls on. It will at once be seen how easily and cheaply cases of this description may be made, so as to answer the same purpose. An old candle-box or soap-box, or tea-chest, or any kind of clean square box you could get at your grocer's, only needs to be cut down, and fitted with a zinc pan for hot water; and a large pane of glass resting on the top would answer, so far, even better than the more expensive ones, because these panes of glass could at any time be turned over to remove any drops of water beginning to collect upon them. For the larger cases, a sponge is very useful, wherewith any moisture that does collect can at once and safely be removed. In connection with these frames, a good-sized box from about four to six inches deep is very useful. Any pot just removed from the heated cases can be sunk in it, and covered with a glass, gradually to

harden the plant for the open air or stands. A few propagating glasses, eight, ten, or twelve inches in diameter, are also desirable.

FLOWER-STANDS, &c.

Flower-stands should not be of wire; for although such stands are very nice-looking when freshly filled, and being portable and taking up little room are very useful just to fill up a space, they are certainly bad contrivances for healthy plants to grow in. It is also a work of some difficulty to make them look ornamental, as the moss which is so essential for them can only with great difficulty be kept in order. In the place of wire, I would recommend wooden stands, in the form of trays or boxes, five or six inches deep, made of wood, rustic in pattern, and varnished for conservatory use. Similar stands of china-tiles, or of zinc ornamented in white and gold, would be suitable for drawing-room furniture. Best, however, of all, I think, are those of basket-work, lined with zinc; made either plain or in an ornamental style, and colored to suit the room or greenhouse in which they are meant to stand. Proper precaution should be taken to procure strength, such as a common solid stand, for in-

stance, for it to rest on, not quite so large as the basket it supports.

The bottom of the basket should be covered with two inches deep of silver sand; on this if small, or sunk through it if large, the pot should be placed, so that all are brought to about half an inch below the level of the top of the basket in which they are. The quantity of sand may be more or less, according to the strength of the stand; the more, I think, the better. Then taking any common moss that can most easily be obtained, a canful of boiling water should be thrown upon it to destroy the insects, and eggs of insects, that may be in it. This process makes the moss particularly dry and clean; only the moss should be spread out in the sun first, or washed, to make the living insects go away: with this moss, the spaces between the plants are to be filled. A round stand holds a very large number of plants; but, before ordering one, it is better to measure a round table, and be guided by that in determining the requisite size. Figures are very deceptive; for once I had a plant-case brought home, that, to my astonishment and dismay, could not, by any manœuvring, be got into the door! for shapes, I am rather an advocate either for the circular, or what may be called a "square oval."

For my own room, I have plain wooden boxes, instead of basket-stands, for holding plants; and

mine have French castors underneath, so that, though very heavy, they are moved with ease.

Whatever the pots are to be arranged in, a tight lining-case or tray of zinc, is much recommended. It prevents injury to the exterior case, and to the furniture of the room, and retains, better than in any other way, the requisite amount of moisture. This tray, whether it forms the lining of a box, or basket, or wire-stand, should be filled with silver sand nearly to the top. If the box is twelve or fifteen inches deep, put first a quantity of good sized knobs of charcoal at the bottom; as this is one of the lightest, most purifying, and most fertilizing materials for the roots of plants. One can always make room to sink a pot through this if the stem of the plant is bare or ugly; and, by filling the case to the top with sand, the smallest pot can be raised to the highest level. Generally, for flowering plants, small pots, which prevent too much sap being wasted on the production of roots, are best; and, when sunk in the sand, their only disadvantage, that of dryness, is removed.

Amongst other requisites for in-door gardening are the following: A pair of gloves with closed linen gauntlets sewed to them, and an elastic band to keep them up the arm, so that they can be pulled off easily, leaving the sleeves and hands unsoiled; a pair of scissors, not too large (those that hold the flowers when cut are very useful);

also a very small syringe, or a little sharpish brush such as is used for dusting picture-frames, a steel trowel, and a sharp penknife. The watering-pot should be small, with a long spout, taking care that the rose screws on, and is water-tight: it is very troublesome otherwise, as the water runs up the user's arm. Water with the chill just taken off is the most preferable for watering plants. The soil may be had at any respectable nursery by the barrow, as peat, leaf-mould, &c.

Sand also may be obtained at the same places. The pots should always be scrubbed between the times of using them, and made to look thoroughly clean and dry.

SPRING.

SEEDS AND CUTTINGS.

1. March and April are very busy months. The first thing to see to is planting cuttings and sowing seeds; and for these the hot-water case is the best thing at first for starting them. For a beginning, let me strongly advise a few pots of good old-fashioned plants, well-known and approved shrubs and flowers: when these are good and flourishing, it will be time enough to seek

after newer flowers. And it should always be remembered that a prudent gardener, so far from despising old plants, acknowledges that it is only by their known good qualities that they have held their own so long against all new-comers. 2. For sowing in March and April, as it is better, perhaps, to name a few examples, I would recommend particularly the following kinds of seeds:—

Nemophila insignis (blue).

Nemophila maculata (white, with dark blotch).

Dwarf German, ten-weeks, and emperor stock.

Large-flowered mignonette.

Smith's camellia-flowered balsam.

Sweet peas.

Common dark nasturtium.

Common dark nasturtium (Tom Thumb).

Perpetual carnations (that is, the tree kind).

Primula (Sinensis).

Cobæa scandens (a quick climber).

Phlox Drummondi (various colors, dwarf, very pretty).

Tropæolum canariensis (canary-bird flower).

Cupheas, pansies, auriculas, and mimulus may be also raised; and German asters are useful in the autumn months. 3. For these seeds it is only necessary to take pots filled about-halfway up with bits of broken pots or charcoal. Charcoal is not only far the lightest, but much the best thing also for the plants themselves. Then fill

up the pots to about an inch from the top with light good soil; carefully examining it for the detection of grubs, wire-worms, wood-lice, and common worms, all of which are enemies to the seedlings. Press the soil slightly down, smoothing the surface with a flat piece of wood, and very thinly scattering the small seeds over it; or placing the larger ones separately, about a half inch a part upon the surfaces. The very small seeds may be just dusted with sandy soil, and the larger ones covered nearly half an inch. 4. For the soil, I have always a supply of peat and good vegetable mould sent in from a nursery. This should be kept in some shed or out-of-the-way cellar until wanted, when it may be either used as it is, or mixed with a little sand, if poorer soil happens to be required. My plan is to have a large panful (or a wheelbarrowful, if it is a great potting day), and then, a small quantity of water being poured into the middle of the heap, the dry soil is worked in with the trowel till all is moist, but not any of it wet. That which is scattered upon the seeds may be used quite dry and mixed with sand; it must be then carefully smoothed and pressed down with a little flat piece of wood.

Now, these pots, and any of tender cuttings likewise (all, as a general rule, having the soil prepared in the same manner), should not be once watered over head from the day they are put in

till the day that they are potted out at last. The pots should be, as far as may be, of a size, and be sunk in moist sand, being packed in it up to their rims. 5. As to the size of pots for ladies' gardening, 32's and 48's (which are about four and five inches diameter respectively) are certainly the best. If the earth in pots of such sizes does become too dry, the sand in which they stand may be watered, but not, if possible to help it, the earth in the pots themselves. 6. The seeds will mostly germinate in a few days' time, and will then want a little air night and morning before they are ready to prick out; the frame or the window should be opened, therefore, a few inches daily. To prevent the soil in the pots becoming dry, it is a good plan to have a piece of glass placed over the top of each pot, which need not be removed until the seedlings begin to appear. If watering be needed before the seedlings at all begin to show, it is sometimes a good plan to place a bunch of moss or wool upon the surface of the soil, and to pour the water upon that, as the water passes gently through the moss or wool, and the sand or soil covering the seeds is not washed away. After seedlings begin to appear, it is far better to pour the water against the side of the pot, holding the spout close upon it, and gently flooding the whole surface. Strange as it seems, this is far the safest plan. 7. And now as to cut-

tings. Generally speaking, the sort of plants that are best to cultivate will grow, most of them, in either of two ways, — from woody pieces, which may strike root even without heat, or from young green shoots kept moist and warm. By the first mode they are almost sure to grow: it seems to me in fact, that it would require some ingenuity to prevent their doing so; but they grow very slowly, sometimes taking a long time before starting, and are continually passed by the little green slips put in three months later. Still it is a useful way to know, both for the security afforded by it, and because, at any time one chances to cut down or break down an old plant, one can always use the hard woody stems, and hope to see them shooting out some day, when, perhaps, the nice little green shoots may have all died away. Put such cuttings in the first year, at least; and as many as can be obtained. In spring, indeed, there will not be many to be had, except from an unfortunately broken or cut down plant. 8. For these woody cuttings, then, at any time of year, take, for example, a branch of fuchsia or of geranium (pelargonium, I should say), a hard old stem of myrtle, of heliotrope, of sweet verbena, or lemon-plant (*Aloysia citriodora*), *Deutzia gracilis*, or, in fact, of any desirable plant with which one has a fancy to try one's skill; the course to pursue, according to the first mode, would be this:

Consider, first, into how many cuttings the branch can be made. Count the number of joints it has; a joint being the slight thickening of the branch at the place whence leaves or lesser branches proceed from it. Of each of these joints a cutting may be made by cutting straight through the branch with a sharp knife, an inch above, and through or below the joint, and being careful not to bruise or tear it; but for cuttings to become more quickly plants of some size, I rather prefer making a cutting which shall include two joints; the top one to make fresh shoots, and the lower one to be buried in the soil, to produce roots. Often a little hard old branch, scarcely longer than two inches, will have two or three short little cut-back spurs, which make small but remarkably good cuttings. 9. Taking these pieces of branch as they are cut, there are two ways of proceeding: the first is an American discovery, and is a very efficient mode. They lay a set of these woody cuttings, either amongst slightly damped moss, or else in a wide-mouthed bottle, with a piece of damp sponge at the bottom of it; the cuttings, being dropped lightly in, are left for ten days or a fortnight in a cool, airy place. A piece of muslin should be tied over the bottle to exclude dust and insects, but allowing air to enter.

I believe there is some "granulating" process

that takes place, as in a healing wound, and when what gardeners term a "slight callus" is formed, the cuttings are almost safe, and put out healthy roots directly they are potted. A heap of dampish moss does as well as the bottle-plan, only the air must not be quite excluded, and no chance must be allowed for mouldiness. 10. In vine-culture this is considered a great discovery: like so many other hits it was, as it were, an accident. It was curious, that all the grape-cuttings that came from abroad should grow! The voyage seemed to improve their health. And so some one thought of trying the same system of packing, minus the sea-air, which was found to be altogether immaterial.

11. However, there is no harm in trying the old practice also, merely laying the cuttings for an hour or two in a dry, shady place, on a bench or table, and then planting them.

12. In whichever way the cuttings are prepared, the process of potting is, in itself, the same. Dibble a little hole close up against the side of a flower-pot, hold the cutting in it, keeping it against the side, and then gently, but firmly, with the little stick or ivory pen-holder used to dibble with, press the soil carefully to the cutting, minding that the hole is really well filled up. These cuttings may be planted all around the pot, not more than an inch apart, and nearly as deep as

the second joint. Any leaves, I take for granted, will have been snipped off, — not torn, but cut off, — so as to leave just the footstalk, till it naturally dries up and fills. 13. The pots thus filled with cuttings must all be sunk, either in sand or moss, or some sort of surrounding. A second pot, two or three sizes larger, filled with sand or dry sawdust, or a box filled in the same way, would do well. No one knows how many cuttings are wasted, and nice plants killed, by heat striking on, or evaporation proceeding from the pots, and thus drying the young rootlets. Sawdust is bad for a plunging material if it be wet, it being liable to become mouldy. If the pots are not to be sunk or plunged, small sixties should be used, with one cutting in the middle of each pot; but the woody cuttings pack in closely and well after the other fashion. So much for the hardiest sort of cuttings of plants that will do well in a spare-room window, or on a back shelf in the greenhouse, that do not need shading, and which, in the months between June and October, will root even in the open air, if placed anywhere out of the hot glare of sunshine, and will keep through the winter in any tolerable dry corner. 14. And now for the green, quick-growing, especially spring-struck cuttings: with these the mode of proceeding must be quite different. An old geranium, covered fresh shoots: a fuchsia, sprouting out in shoots

an inch long all over; sweet verbena and heliotrope the same; young shoots, too, of myrtles, and of begonias, — all come under the division of soft-wooded plants. Now, with these young shoots, just slipped, not cut off from the stem, the treatment must be quite different. With these the grand secret is never to let them droop. Do not try to "form calluses," or let the cuttings dry.

15. The pots should be all ready, filled with soil that has stood in the sun a little while or in the greenhouse, so that it may not chill them too much. In re-potting any tender things, and watering them, chills are quite as bad for plants as they for human beings. It is important to remember that fact. One cutting may be put in a pot alone to save the potting out; and for a beginner, perhaps that is the safest mode; otherwise six or eight, or even ten, may be inserted as before, round the size of a four or five inch pot. Where the leaves are larger, even though the lower ones are removed (leaving a bit of footstalk always), I think the middle of a small sixty best. Dibble them in, and plunge the pots as directed for the hard-wooded cuttings; but the sand or moss need not be very moist, as the soil in the pot is not at present dry. The use of a bell-glass would keep all warm and moist; but the need of air-giving must never be quite forgotten. 16. It is

necessary to watch sharply for the approach of yellow or decaying leaves, for any spot of mildew, and for footstalks ready to be taken gently off when loose. The cuttings must have air admitted every night and morning, and should be shaded from sunshine, and now and then be bedewed with water from the smallest syringe, or from a brush just dipped in water and shaken very gently over them. This should be done very carefully; and it is best to try one or two pots first, when, if any signs of mildew appear, you may depend upon it they are damp enough without. I do not myself like the plan much, but think that keeping the sand or moss around them moist answers much better, and is very much safer. 17. But another and opposite danger must be carefully avoided, namely, over-evaporation; which, if it takes place from the leaves and stems, dries up the plants and kills them. To prevent this, exclude dry air to a certain extent; but, if the atmosphere becomes a perpetual vapor-bath, the leaves will decay, become mildewed, and "damp off," as the gardener terms it, — a phrase emphatically describing both the cause and effect. 18 Heat, and air, however, being provided, a large amont of moisture in the atmosphere can be bourne by the cuttings, because, under these circumstances, their growth is generally proceeding fast. I think, also, that by observing and coun-

teracting a very few bad symptoms, it is always possible to avoid much mischief. When I turned gardener first, my most lucid instruction as to watering was to water my plants when they needed it, and "to look to them to tell me when." That may hold good with old plants, but is very far from being applicable to cuttings. Perceiving, for instance, limp, hanging leaves, I supposed they needed moisture, whilst, in reality, they had far too much at the roots, and really required a little sprinkling overhead, or damper air. 19. The young green shoot-cuttings must be closely watched, and should never be watered overhead when the soil in the pot is dry; the root-moisture always requiring to be first supplied. If the leaves seem limp and hanging, notice whether they have little drops of water standing about them, whether any part of the leaf or stalk has turned a little brown, and whether the other parts of the cutting look healthy. Bright, fresh-looking, crisp-standing leaves of the usual color, according to the sort of plant, are invariable signs that so far all is well. If, then, the plant is all right, I should be disposed very gently to cut off the flagging leaf: it may be that you have left too many leaves, and so the plant shows its inability to supply them all with sap. Watching them pretty closely, they cannot come to much harm in this way; and the more leaves a cutting

will bear without their flagging, the quicker will it grow, as the leaves feed the plant. At the least sign of that brown decay, I always take off the leaf at once, and give generally more air.

20. Sometimes, as in sweet verbenas for instance, the leaves just let go, as it were, and quietly drop down: this is generally, I think, from want of air, or from having it too moist. When they turn yellow, it is from the air being too dry. For this plant, it is well to try experiments till you discover what does suit it: it is worth a little trouble, and may with care be kept in very great freshness, covered with its delightfully-scented leaves, and allowing of almost incessant gathering. In other cases, the heads of cuttings may be hanging down, while the lower leaves look fresh and growing: there is no need, then, for misgivings, as the chances are, that the cuttings will all be vigorous to-morrow, especially if you moisten a little of the sand outside of the pot, and do not let them be in too strong a light. Cuttings of scarlet geraniums, and such spongy sorts, are greatly given thus to droop their heads; and should there be sometimes a yellow leaf or two, the soil looking at the same time dry, and the cuttings a little parched, then, in spite of all my rules, they must have a little water; for geraniums show directly by their yellow leaves if they remain one day unwatered when they really are too dry.

For all these soft-wooded cuttings, either a heated case is needed, or they should be placed on a green-house shelf, or even on a chimney-piece under small bell-glasses. 21. For verbenas, calceolarias, pansies, heliotropes, and chrysanthemums, shallow pans are suitable: indeed, common saucers answer perfectly. Put on them silver-sand an inch deep, or less, and pour in water enough to make a thin sheet of it above the sand; cut off the lower leaves, and stick the stalks of the little inch-long tops of the young shoots well down into the sand. They are better for some sort of shade and heat, if it be only the warmth of a chimney-piece; or they may be put over a basin of hot water, refilled twice a day, with a glass for shade, or with a rolled-up cover of tissue paper, in the absence of any proper propagating case. Before the water in which they are grown has dried up, they will be almost all of them beautiful little rooted plants, ready to be put in small pots full of light, good soil and their own tops will furnish, if wanted, a second set of cuttings. I have tried begonias and balsams in this way; and both, I fancy, will very generally succeed. 22. The cutting being "an extension of the parent plant," it is a golden rule to know that the circumstances of the latter must be considered and carried out in trying to raise the young plants raised from it. If, therefore, the old plant has

been forced, to cause it to send out shoots, these shoots must have a proportionately warm place. Hard-wooded cuttings will do with scarcely any heat or moisture, in a half-stagnant, slowly-growing way, while young shoots would be ruined if once suffered to get dry. Cuttings taken from the tips of the branches will, in many cases, make sturdy little bushes, even though the usual growth of the plant is straggling. This is a very important rule to recollect. Such naturally straggling plants also require to be kept in smaller pots; indeed, generally speaking, the smaller the pot may be (in reason), the more abundant and the earlier is the blossom of the plant, its strength and sap not being expended in the production of roots and leaves. Having now concluded our remarks upon in-door gardening, we will proceed to give a few very useful recipes valuable for *gardeners* and fruit-raisers.

SEEDS.

AN EASY METHOD OF DISCOVERING WHETHER OR NOT SEEDS ARE SUFFICIENTLY RIPE.

Seeds, when not sufficient ripe, will swim; but, when arrived at full maturity, they will be found uniformly to fall to the bottom, — a fact that is said to hold equally true of all seeds, from the cocoanut to the orchis.

ON PRESERVING SEEDS OF PLANTS IN A STATE FIT FOR VEGETATION.

Seeds of plants may be preserved, for many months at least, by causing them to be packed, either in husks, pods, &c., in absorbent paper, with raisins or brown moist sugar; or a good way, practised by gardeners, is to wrap the seed in brown paper or cartridge-paper, pasted down, and then varnished over.

A SURE METHOD OF CURING GRAVEL-WALKS.

Three parts of pond-water to one of brine, from the salting-tub in a family, poured with a water-pot upon gravel-walks, will not only kill the moss upon them, but drive away the worms which make so many holes in them, and also prevent weeds springing up. This a gentleman tried who has several gravel-walks in a grove near his home. Since he moistened his walks with brine, which is four years ago, they are incommoded neither by moss, weeds, or worms. Every autumn he causes them to be well watered with the brine and pond water, during a whole week, to prevent moss, and a week in the spring to guard against weeds and worms, besides giving them a sprinkling every now and then in summer when they seem to want it.

POTTING OFF, WATERING, AND GENERAL TREATMENT.

When the little seedlings and freshly-stuck cuttings have made their first start, and have gradually been accustomed to a little more air and light by the glass being constantly longer left a little open and gradually more open, the time approaches for their being put into separate small pots. Where any peculiar treatment is required I will name it under the head of the flowers it refers to; but, in a general way, it is safe to proceed thus: Take small pots, and put into each a small piece or two of charcoal about the size of a walnut; fill up the pot nearly to the brim with warm moist soil, much the same in quantity as that used for seeds; with the little dibble make some tiny holes, full big enough, however, for the roots that may be formed; and then, with an old teaspoon (which is the best implement) or an ivory dibble, raise the little seedlings one by one, and, putting each into its proper hole, gently press in the earth around it. Put four seedlings in each pot, unless it is specially desirable, as with balsam, to pot them separately. In the case of cuttings, one is enough; as being single, risk and anxiety are avoided when the time comes for moving them to a larger pot

The cuttings I generally slip out of the pot in a ball, by laying the pot on its side, and pressing through the little drainage-hole the end of my useful little ivory stick (a penholder, in fact), which causes the mould to slide out in an unbroken mass.

Separate the cuttings very gently, retaining all the soil possible about their roots, and put them singly into the pots already prepared, as for seedlings, to receive them; but never fill any pot whatever up to the very brim with soil. Replace them for a week or two in the case where they were before, keeping it a little closer and a little shadier for the first few days.

There are a few other points needful to mention. Sometimes a set of seedlings will begin running up very tall and weakly. Generally, this is a sign that they are too crowded, and thus overshadow each other, or that they are too hot, or that too little light and air are admitted, and that they are, therefore, making efforts to reach the light. Any such wrong-doings must, according to the cause, be remedied as before described. This reminds me to speak of plants that are getting one-sided; or, rather, of plants that we want not to get so, but to shoot out equally from each side. These should be kept in a light coming directly from above them, the plants never being let to grow wrongly: they should be turned

daily, so that each side may receive an equal amount of light.

According as the young plants have few or many leaves, will they want much or little water; and it is astonishing, when a plant is in flower, the quantity that it drinks. It is rather essential here to remember never to give the water quite cold, but tepid: a very little hot water will serve to take off the chill, and rain-water is by far the best to use.

For old plants, — of established growth I mean, — nothing helps to keep them in health more than washing. Geraniums and myrtles and orange-trees will look beautifully fresh and glossy after all their leaves have been carefully sponged over. All through the summer, this can hardly be done too often. Having a large pan or basin with a little rain-water in it, the plant should be leaned gently over, and, with a large paint-brush or small piece of very wet soft sponge, every leaf and stem should be thoroughly washed over, underneath as well as above. Afterwards, I think, a general syringing with some clean water sometimes does still more to improve the brightness of the leaves. Scarlet geraniums, and theivy-leaved ones, are well worth doing often, and so of all plants or myrtles. The thicker and more leathery the leaves, the more do they seem to benefit by this washing. The roses, too, rejoice

in it, as do camellias and azaleas; while to cactuses when growing, it is almost life. The delightful perfume of the wet geraniums and myrtles will repay the trouble. For the more delicate-leaved plants, I think a very fine syringe or a brush shaken over them is the best; but, as a general rule, the water should never, in any case, touch the flowers: it stains them almost invariably. To prolong the blooming of plants, every fading flower, even if it is but one in a cluster, should instantly be cut off. To keep the flowers of azaleas from falling, it is a successful plan to drop a single drop of strong gum-arabic water underneath the flower where it sinks into the calix. For the greater beauty, as well as for the health of the plant, every leaf beginning to turn yellow should be cut off at once. The sand and moss in which the plants stand should never be made very wet, even though kept moist; and every now and then, it is well to turn it out in a heap in the open air, there to remain until thoroughly dry: it can be moistened again before returning to the stand. No flowers should be left with water standing in the saucers, unless this is particularly directed, as in cases of some almost aquatic plants; and, where the plants are sunk in boxes or in outer pots, there is no need of using saucers, which are always so apt to get full of the water which drains from the pots.

The only place where I advocate the use of saucers is in the suspended baskets; the pot itself being wrapped up in moss or some sort of covering, the saucer, also hidden, then serves to secure for it a permanent supply of moisture. The current of air in which these pots often hang causes them to require a more abundant supply of water than is needed by other plants.

Watering plants is one of the greatest troubles to all beginners. The general and especial rules given for its performance make them feel that a trifling neglect as to the time or manner of giving, or as to the quality, may be ruin to their plants, and that it is next to impossible really to administer water rightly; giving too much and giving too little being threatened with almost equal penalties. I do not know how far it is possible to make up by explanation for want of practice; but I do not see that it need in any way be difficult, with a little care, to learn how to give water judiciously. It is an almost universal rule in watering plants to do it thoroughly each time it is done. A very small quantity merely damps the surface, and stimulates the surface-roots, which are often the most tender; then the heat of the sun, or the usual evaporation, dries them up, and injures them more than if they had not been watered. To allow water to stand in saucers is objectionable, except for *Calla Æthiopicas*

(or Arum lilies), and such like semi-aquatic plants, as the lower roots kept constantly and excessively wet become liable to decay. Perhaps the safest general rule (subject to special directions as to winter season or to resting plants) is to water plants once a day when they are growing or flowering; abstaining from doing so, however, in any case where you find the soil in the pot already moist, and repeating it a second, or even a third, time on very hot days, if the soil seems dry, and the plants begin to flag. I think it answers well, if the drainage is quite good and the soil rather light, to supply water till a few drops begin to run through the bottom of the pot. This rule is not certain, however, because, sometimes, the soil has become so very dry, that the water passes down between the pot and the hard ball of soil formed by the matted roots, scarcely moistening even the outside of that mass. Lately, I watered the same plant five or six times; the water filling the saucer it stood in, without penetrating to the roots. In such a case, let the pot stand just up to a level with the surface of the earth (not over it), in a pan of water, for perhaps ten minutes, till the earth be well wet through. This ought not, however, to be a frequent trouble, if the pots stand in damp sand or moss. Even in winter, when wet sand is objectionable, I only let the sand get a little dried; keeping the pots still in it,

and sometimes, by way of watering, damping the inch of sand next the floor they stand on. The appearance of drooping is not always to be admitted as a call for water. If the soil is not absolutely dry, the cause would probably be rather in the heat and dryness of the surrounding air; and, as we all know, to water a plant in sunshine causes it to flag or droop. In these cases, shading, or slightly damping the floor on which the plants stand, so as to cause a little steam to rise, is the most likely treatment to restore the plants. The principle is; that there must be a fair balance between the moisture supplied by the root, and the evaporation going on from the leaves. During the plant's half-dormant time, if a sudden stimulus occurs (such as a sudden sunny day in winter succeeding a frost), shading, and even sprinkling the leaves, is the only safe mode of treatment; but, even then, extra water at the roots would be injurious. In winter, when water is needed, it should be given about ten o'clock, and while the sun is shining. I always venture on watering my plant-cases and greenhouse in sunshine, nearly closing them afterwards for a short time, till the foliage has enjoyed its vapor-bath. The rapid drying, however, of the soil in summer requires a much more frequent soaking; for it should be remembered that plants in the ground have a deep supply of moisture on which to draw

(the soil seldom being dry beyond a few inches deep), whilst plants in pots, however well attended to, have their supply to a far less extent. A thorough soaking every morning and evening in hot, bright weather, is not at all too much to give to pot-plants to preserve them thoroughly green and fresh. For the encouragement of those who have no accommodation for plants beyond a staircase or parlor window-sill, and perhaps a corner of a chimney-piece, I may here remark, that, even in such cases, they need, by no means, be deprived of flowers; some of the very nicest plants I have ever seen for windows having been possessed by those who could give them no better home.

Where boxes for plunging cannot be had, a second flower-pot a size larger, and filled with moss or sand, will answer every purpose. Where there are no special arrangements for striking cuttings, a tumbler, or a broken wineglass, over the pot or pan in a warm chimney-corner or a shady window-ledge in a living room, will, for myrtle, fuschia, and geranium cuttings, be as effective as a glass case; care, however, being taken to keep the glass very often a little raised on one side to admit air. In instances like these, where the plants are few, they are often very thriving; so much care being concentrated upon them. I remember seeing, two years ago, a most

vigorous stock both of cuttings and tender seedlings growing in an old box heated by two common stone bottles full of hot water, placed at one end, and covered with a piece of glazed calico tacked upon a slight frame, or hooked to the edge of the box by little nails and rings. A pane of glass laid over the box would answer even better. Such a humble contrivance answers all slight hot-bed purposes, and many most healthy plants have been thus raised. The temperature in which plants are grown should always be greater by day than by night. The bottle or bottles, filled at night, cause the soil to retain some heat until the next morning; and on a sunny day the little box becomes very warm and steamy, often requiring, like more pretentious structures, a little opening for the admission of air.

GENERAL INSTRUCTIONS.

Having now described the very simple and easily-managed appliances that are needed for the various degrees to which flower-gardening can be carried on in the way I write of; the details and precautions used in potting, watering, &c., having been entered into and discussed, — I have only to speak of the culture of special plants, and to give a short but compre-

hensive list for each month of those by which a rich display may be continually kept up. For small plant cases and stands, it would be well to mark two or three kinds for each month's use; which the number of kind and colors mentioned here will abundantly afford. If my advice regarding the use of evergreens is carried out, I think it will be easy to calculate the number of flowering-plants which will be wanted. Four-inch pots, when the plants they contain are in blossom, would be sufficient generally if they average from one to three per foot, according to the width of the case or stand or shelf, and the degree of gayety required to be maintained. The number, also, must be regulated by the growth of the plants themselves, one larger plant often standing in the place of several of a smaller size. With the first year of the garden we will suppose ourselves beginning to fit up flower-stands and plant-cases.

My first rule is, that evergreens of all kinds should be admitted largely; for I have never known them restricted in number, without a sacrifice at once of beauty and of health.

2. Plants cannot bear a very great crowd of flowers, either of their own or of any other kind, especially if any time in confinement; but evergreens occupy without injury very many spaces where succulent-leaved plants, or those of a soft-

er texture, would both suffer, and make their neighbors suffer, by the closeness of their contact. Evergreens form, moreover, a dark and beautiful contrast to the light-green shoots which so generally accompany the flowers on other plants, and which, deprived of the darker background, would look poor and ineffective, even when in their freshest and faintest dress. For economy, besides, these plants are very desirable. The most beautiful of all — the myrtles, ivies, firs, begonias, and geraniums — are, at the same time, very inexpensive in their first cost, and are plants that will grow on and on for years, gaining every year in size and beauty, allowing an immense amount of cutting from them for vases, and generously growing all the better for such treatment. All of these plants may be bought, either singly or by the dozen, at a moderate price. Myrtles, both blossoming and small-leaved kinds, are most lasting and useful evergreens. Firs are strikingly effective and altogether charming, with their pine-wood scent and the pale-green tassels that enliven their dark boughs; and geraniums, large bushy plants, of the sweet-scented kind, — especially for conservatories, the scarlet giganteum, which is so readily trained; begonias, whose crimson veins and footstalks give brightness almost equal to that of flowers amongst the glossy deep-green leaves; and common ivy,

which grows so slowly that it is quite as dear as many a greenhouse plant to buy, and very much more worth buying than many of them. The very small-leaved sort of ivy is far the prettiest for in-door growth, but it is also far the most difficult to meet with: even in the country, it has been a work of time and of many searches amongst the old trees in the woods to find it. Still these plants are all well worth some trouble, not only because they are to be long enduring, but also because they are in themselves so beautiful. Supposing, then, a conservatory, a glass case, a flower-stand, or a hanging garden, or even a window-sill, with its box, to be kept the brighter and greener because its extent is so small and it requires so little; for each and for all I have a most strong predilection, in counting the pots required, to set down boldly one-half for evergreens. Were there any difference, I should say let the excess be in their favor; and it must be remembered that evergreens themselves are not flowerless. The chief secret lies in having good distinct colors showing amidst the green. The half-hidden flowers are a great charm; and I think that the various tints of paler and darker green are, for an object continually before one's eyes, more attractive than a very gay mass of color. The treatment for all myrtles, geraniums, and such green plants, is more simple. So long

as the plants grow quickly, water freely so as to prevent any falling or drooping of leaves: when growing slowly, give them but little water; and if they can be spared to stand out a few weeks in the summer on a sunny roof or balcony, or on a stand or coal-ash bed in the garden (provided that worms may not find an entrance to their pots), they will be much the better and much the hardier for such treatment. When taken in, very little water will keep them a long time without drooping, especially if placed upon some dampish sand. The leaves at any time, if dusty, are benefited and beautified by sponging with lukewarm water: both the under and upper surface should receive this treatment. It is also well, occasionally, to gently loosen the surface of the soil, taking away some, and replacing it with fresh soil pressed tightly in. With this treatment, say twice a year, myrtles, &c., do not need very large pots. In concluding these general hints, I must repeat how much of the beauty of the whole of the display will be found to depend upon the healthy look and abundant supply of evergreens, such as, lasting through all seasons, become every year more firmly established in the places which they so beautifully fill.

TO REMOVE HERBS AND FLOWERS IN THE SUMMER.

If you have occasion to transplant in the summer season, let it be in the evening, after the heat is past; plant and water the same immediately, and there will be no danger from the heat the next day; but be careful, in digging up the earth, you do not break any of the young shoots, as the sap will exude out of the same to the great danger of the plants.

METHOD OF GROWING FLOWERS AND FRUITS DURING WINTER.

In order to produce the effect, the trees or shrubs being taken up in the spring, at the time when they are about to bud, with some of their own soil carefully preserved among the roots, must be placed upright in a cellar till Michaelmas; when, with the addition of fresh earth, they are put into proper tubs or vessels, and placed in a stove or hothouse, where they must every morning be moistened or refreshed with a solution of half an ounce of sal-ammoniac in a pint of rain-water. Thus, in the month of February fruits or roses will appear; and with respect to flowers in general, if they are sown in pots at or before Michaelmas, and watered in a similar manner, they will blow at Christmas.

TO PRESERVE DELICATE YOUNG SHOOTS AND FLOWERS FROM SLUGS, ETC.

Earwigs and slugs are fond of the points of the young shoots of carnations and pinks, and are very troublesome in places where they abound. To prevent them getting to the fine stage-plants, or supports of the stage, they are sometimes insulated in water, being set in pans. If a pencil dipped in oil was drawn round the bottom of the pot once in two days, neither of these insects nor ants would attempt them. Few insects can endure oil. The smallest drop of it is instantly fatal to many kinds.

VIRTUES OF THE SUNFLOWER.

The cultivation of the annual sunflower is recommended to the notice of the public, as possessing advantages of furnishing abundance of agreeable fodder for cattle in their leaves. When in flower, bees flock to them from all quarters to gather honey. The seed is valuable in feeding sheep, pigs, and other animals; it produces a striking effect in poultry, as occasioning them to lay more eggs; and it yields a large quantity of excellent oil by pressure; the dry stalks burn well, the ashes affording a considerable quantity of alkali.

TO PRESERVE FLOWER-SEEDS.

Those who are curious about saving flower-seeds must attend to them in the month of August. Many kinds will begin to ripen apace, and should be carefully sticked and supported to prevent them from being shaken by high winds, and so partly lost. Others should be defended from much wet; such as asters, marigolds, and generally those of the class syngenesia; as from the construction of their flowers they are apt to rot, and the seeds to mould, in bad seasons. Whenever they are thought ripe, or indeed any others in wet weather, they should be removed to an airy shed or loft, gradually dried, and rubbed or beat out at conveniency.

CULTURE AND TREATMENT OF FRUIT-TREES AND SHRUBS.

To prevent Blossom and Fruit Trees from being damaged by early Spring Frost.—If a rope (a hempen one it is presumed) be intermixed among the branches of a fruit-tree in blossom, and the end of it brought down so as to terminate in a bucket of water, and should a slight frost take place in the night-time, in that

case the tree will not be affected by the frost; but a film of ice, of considerable thickness, will be formed on the surface of the bucket in which the rope's end is immersed, although it has often happened that another bucket of water, placed beside it for the sake of experiment, has had no ice at all upon it.

CHINESE MODE OF PROPAGATING FRUIT-TREES.

The ingenious people of China have a common method of propagating several kinds of fruit-trees which of late years has been practised with success in Bengal. The method is simply this: they strip a ring of bark about one inch in width, from a bearing-branch, surround the place with a ball of fat earth or loam, bound fast to the branch with a piece of matting: over this, they suspend a pot or horn, with water, having a small hole in the bottom just sufficient to let the water drop in order to keep the earth constantly moist. The branch throws new roots into the earth just above the place where the ring of bark was stripped off. The operation is performed in the spring; and the branch is sawn off, and put into the ground, at the fall of the leaf. The following year it will bear fruit.

TO IMPROVE FRUIT-TREES BY ATTENTION TO THE COLOR OF THE SOIL.

The color, and also the quality, of soils have an effect on the color and flavor of fruits, even on the color of many flowers. The effects of the color of soils on that of fruits are most perceptible on the delicate kinds, such as grapes, peaches, &c.; but to a nice observer it extends, in a greater or less degree, to all fruits. For instance, if two black Hamburg grapes, made from the cuttings of the same plant, shall be planted, the one in a dry hazelly loam, and the other in a moist black earth, the fruit of the one will be brown, or of a grizly color, and the other very dark red or black; and the grape will be more juicy, though better in flavor, than the other grown in a drier soil.

TO INCREASE THE GROWTH IN TREES.

It may be depended upon as a fact, that by occasionally washing the stems of trees, their growth will be greatly increased; for several recent experiments have proved that all the ingredients of vegetation united, which are received from the roots, stem, branches, and leaves, of a mossy and dirty tree, do not produce half the increase, either in wood or fruit, that another gains whose stem is clean. It is clearly obvious,

that proper nourishment cannot be received from rain; for the dirty stem will retain the moisture longer than when clean, and the moss and dirt will absorb the finest parts of the dew, and likewise act as a screen, by depriving the tree of that share of sun and air which it requires. A common scrubbing-brush and clean water is all that is necessary, only care must be observed not to injure the bark.

TO PREVENT HARES AND RABBITS FROM BARKING YOUNG PLANTATIONS.

Hares, rabbits, and rats have a natural antipathy to tar; but tar, though fluid, contracts, when exposed to the air and sun for a time, a great dryness and a very binding quality; and if applied to trees in its natural state, will occasion them to be bark-bound. To remove this difficulty, tar is of so strong a savor, that a small quantity mixed with other things, in their nature open and loose, will give the whole mixture such a degree of its own taste and smell, as will prevent hares, &c., touching what it is applied to. Take any quantity of tar, and six or seven times as much grease, stirring and mixing them well together: with this composition brush the stems of young trees, as high as hares, &c., can reach; and it will effectually prevent their being barked.

Bad Effects of Iron Nails, &c., on Fruit-trees, or Mischievous Effects of Iron Nails in Conjunction with Branches of Fruit-Trees.—It often happens that some of the limbs of fruit-trees, trained against a wall, are blighted and die, while others remain in a healthy and flourishing state. This has been hitherto erroneously attributed to the effects of lightning; but from closer observation, and from several experiments, it has been found to arise from the corroding effects of the rust of the nails and cramps with which trees in this situation are fastened. To avoid this inconvenience, therefore, it requires only to be careful in preventing the iron from coming in contact with the bark of the trees.

TO DESTROY MOSS ON TREES.

Remove it with a hard scrubbing-brush in early spring, and wash the trees with cow-dung, urine, and soap-suds.

NECESSITY OF TAKING OFF SUPERFLUOUS SUCKERS FROM SHRUBS.

Many flowering shrubs put out strong suckers from the root, such as lilacs, syringas, and some of the kinds of roses, which take greatly from the strength of the mother-plant; and which, if not wanted for the purpose of planting next season, should be twisted off, or otherwise destroyed.

TO CURE THE DISEASE IN APPLE-TREES.

Brush off the white down, clean off the red stain underneath it, and anoint the places infected with a liquid mixture of train-oil and Scotch snuff.

TO CURE THE CANKER IN TREES.

Cut them off to the quick, and apply a piece of sound bark from any other tree, and bind it on with a flannel roller. Cut off the canker, and a new shoot will grow strong, but in a year or two you will find it cankered.

A METHOD OF CURING FRUIT-TREES INFECTED WITH AN EASTERLY BLIGHT.

Where valuable fruit-trees are infected with this blight, they may, with little trouble and expense, be in a short time cured by fumigating them with brimstone strewed on light charcoal. This effectually kills the blight; but the workman must observe to get to windward of the tree, as the fumes, both of brimstone and charcoal, are very offensive and pernicious.

EXPERIENCED METHOD OF HEALING WOUNDS IN TREES.

This method consists in making a varnish of common linseed oil, rendered very drying by boiling it for the space of an hour, with an ounce

of litharge to each pound of oil, mixed with calcined bones, pulverized and sifted to the consistence of an almost liquid paste. With this paste the wounds of trees are to be covered, by means of a brush, after the bark and other substances have been pared, so as to render the whole smooth and even as possible. The varnish must be applied in dry weather, in order that it may attach itself properly.

COMPOSITION FOR HEALING WOUNDS IN TREES.

Take of dry pounded chalk three measures, and common vegetable tar one measure; mix thoroughly, and boil them with a low heat, till the composition becomes of the consistency of bees-wax: it may be preserved for use in this state for any length of time. If chalk cannot conveniently be got, dry brick-dust may be substituted. Application after the broken or decayed limb has been sawed off. The whole of the saw-cut must be very carefully pared away, and the rough edges of the bark, in particular, must be made quite smooth: the doing of this properly is of great consequence. Then lay on the above composition hot, about the thickness of a silver half-dollar, over the wounded place and over the edges of the surrounding bark. It should be spread with a hot trowel.

TO PRUNE WALL-FRUIT.

Cut off all fresh shoots, however fair they may appear to the eye, that will not, without much bending, be well placed to the wall; for if any branch happen to be twisted or bruised in the bending or turning (which you may not easily perceive), although it may grow and prosper for the present, yet it will decay in time, and the sap or gum will issue from that place.

TO PRUNE VINES TO ADVANTAGE.

In pruning vines, leave some new branches every year, and take away (if too many) some of the old; which will be of great advantage to the tree, and much increase the quantity of fruit. When you trim your vine, leave two knots, and cut them off the next time; for usually the two buds yield a bunch of grapes. Vines thus pruned have been known to bear abundantly; whereas others, that have been cut close to please the eye, have been almost barren of fruit.

THE MOST PROPER TIME WHEN LEAVES OF TREES OUGHT TO BE COLLECTED FOR PHARMACEUTICAL AND ECONOMICAL PURPOSES.

It is at the period when the plant is in full flower that the leaves possess their full virtue. They drop when their particular life has terminated.

CULTURE AND MANAGEMENT OF GARDEN CROPS.

TO PROPAGATE HERBS BY SLIPS AND CUTTINGS.

Many kinds of pot-herbs may, in July, be propagated by cuttings or slips, which may be planted out to nurse on a shady border for a few weeks, or till they have struck root, and may then be planted out where they are to remain. If made about the middle or end of the month, they will be ready for transplanting before the end of August, and in that case will be well established before the winter. The kinds are marjoram, mint, savory, sorrel, tansy, tarragons, and thyme.

METHOD OF RENDERING ASPARAGUS MORE PRODUCTIVE, AND OF PRODUCING IT EVERY MONTH IN THE YEAR.

The flowers of asparagus are found, on a strict examination, to be dicecious, although arranged by Lennæus and other botanists as hermaphrodite. Those individuals which bear berries have abortive stamina; and those which have perfect stamina are destitute of pistils, or at least, have only abortive ones. The male plants throw up a far greater quantity of shoots than the female ones, although not equal to them in size. In the formation, therefore, of beds, the male plants only

should be selected, which may easily be done by not planting them from the seed-bed until they have flowered. When the plants are one year old, transplant them into the other beds, at six inches distance; let them remain there until they flower, which will be in most of them in the second year; put a small stick to each male plant to mark them; and pull up the females, unless you choose to make a small plantation with some of them to prove the truth of the experiment. As asparagus is esteemed one of the greatest delicacies which the garden affords, no person fond of it should be unacquainted with the method of producing it in every month of the year. Towards the end of July especially if it be rainy weather, cut down the stalks of the asparagus, fork up the beds, and rake them smooth. If it be dry, water them with the draining of a dung-hill; but, instead of leaving them round, leave them rather flat or hollow in the middle, the better to retain the water or rain. In about twelve or fourteen days, the asparagus will begin to appear, and, if it be dry weather, continue watering once or twice a week. By this method you may cut asparagus till about the end of September, at which time the hot-beds will succeed this; so that, by making five or six hot-beds during the winter, you may have a regular succession of it every month of the year. Some person will object to cutting the

same beds twice a year: to obviate this objection, leave two or three beds uncut in spring, and make a few more beds if you choose to follow the practice.

Asparagus-seed is very cheap; nor is it necessary to use so much as was formerly used in making the beds. It is better to apply a little rotten dung on the tops of the beds, and to sow some seed every year, that you may have plenty of plants for forcing, and making new beds. Be not too fond of continuing the old ones when you perceive they begin to fail, but make new ones, and force the old roots.

IMPROVED METHOD OF RAISING CUCUMBERS.

From the best seed that can be got of the common prickly cucumber, raise plants on a moderate hot-bed, not hurrying them too much in their growth. In May, when the danger of the frost is nearly over, familiarize the plants by degrees to the air, and, towards the latter end of the month, plant them in the open ground against a south wall. Take care not to give them too much water, as that will injure the fruit. When they have run up about five feet, they will send forth blossoms; and the fruit will begin to show itself soon after. The flesh of cucumbers raised in this way will be thicker and firmer, and the flavor vastly more delicious, than those raised from the same seed.

but planted in the ordinary way, and the runners suffered to trail on the ground. Though a south wall, in most gardens, is too much appropriated to other things to give room for cucumbers in general, yet, in every garden, a few plants may be so trained by way of rarity, and to save seed, which is found to be greatly improved by this method, so as to produce much better cucumbers in the common way of raising them. One or two plants so raised will supply a sufficient quantity of seed for a large garden. Laying a cucumber or melon bed with tiles is also of particular service in improving the fruit, and giving it a proper flavor.

TO PREVENT THE IRREGULAR GROWTH OF MELONS.

It is well known that melons frequently, in certain situations, lose their circular form, and grow longer on one side than the other; and that those misshapen fruits are always bad. To remedy this, take a small forked stick, in proportion to the size of the melon, and thrust it into the ground as nearly as possible to the tail of the fruit, taking the precaution to lay a little moss between the two prongs, and suspend the melon to this fork. In a few days, the melon will resume its form, when the fork may be removed, and the operation is finished. The quality of the fruit remains unchanged.

AN EASY METHOD OF PRODUCING MUSHROOMS.

If the water wherein mushrooms have been steeped or washed be poured upon an old bed, or if the broken parts of mushrooms be strewed thereon, there will speedily arise great numbers.

TO OBTAIN A GOOD CROP OF ONIONS.

In order to obtain a good crop of onions, it is proper to sow at different seasons, viz., in light soils, in August, January, or early in February; and, in heavy wet soils, in March, or early in April: onions, however, should not be sown in January, unless the ground be in a dry state, which is not often the case at so early a period of the season; but, if so, advantage should be taken of it.

THE ADVANTAGE IN SOWING PEAS IN CIRCLES, INSTEAD OF STRAIGHT ROWS.

It is a great error in those persons who sow the rows of tall-growing peas close together. It is much better in all those sorts which grow six or eight feet high to have only one row, and then to leave a bed ten or twelve feet wide for onions, carrots, or any crops which do not grow tall. The advantages which will be derived are, that the peas will not be drawn up so much, be stronger, will flower much nearer the ground,

and in wet weather can be more easily gathered without wetting you. But, instead of sowing peas in straight rows, if you will form the ground into circles of three feet diameter, with a space of two feet between each circle, in a row thirty feet long, you will have six circles of peas, each nine feet; in all fifty-four feet of peas, instead of thirty, on the same extent of ground. If you want more than one row of circles, leave a bed of ten or twelve feet before you begin another. For the very tall sorts, four-feet circles will afford more room for the roots to grow in, and care must be taken, by applying some tender twigs or strings, to prevent the circles from joining each other. This method is equally applicable to scarlet beans.

TO RAISE PEAS IN AUTUMN, AND TO PREVENT MICE FROM EATING THEM WHEN SOWN.

The purple-flowered peas are found to answer best for a late crop in autumn, as they are not so liable to be mildewed as many of the other sorts, and will continue flowering till the frost stops them. Those peas may be sown in July, August, or so late as the first week in September, if sown in a warm, sheltered situation, and in a soil inclining to sand. Soak the peas in warm milk, and, after you have drawn the drills, water them before you sow the peas. It is best to sow them towards the evening. If the autumn should prove very

dry, they will require frequent watering. When peas are sown before winter, or in early spring, they are very apt to be eaten by mice. To prevent this, soak the peas for a day or two in train-oil before you sow them, which will encourage their vegetation, and render them so obnoxious to the mice, that they will not eat them.

VARIOUS USEFUL PROPERTIES OF TOBACCO TO GARDENERS.

Tobacco is employed for so many different uses, that there is no person possessed of a garden but will find both pleasure and profit in the cultivation of it, especially as it is now at such a high price. The seed is very cheap, and may be procured of most seedsmen, and will answer the same end as the foreign for most purposes, and considerably cheaper. Uses to which it may be applied: —

1. To florists, for two elegant annual plants to decorate the borders of the flower-garden; or, on account of their height, to fill up vacant places in the shrubberies; or, when put into pots, they will be very ornamental in the greenhouse during the winter.

2. Kitchen gardeners would in a few days lose their crops of melons, if not immediately fumigated with tobacco-smoke when attacked by the red spider; and it is useful to destroy the black flies on cucumbers in frames.

3. Fruit-gardeners.—When peach and nectarine trees have their leaves curled up, and the shoots covered with smother-flies, or the cherry-trees have the ends of the shoots infected with the black dolphin fly, canvas sheets, or doubled mats nailed before them, and frequently fumigated under them, will destroy those insects.

4 Forcing-gardeners, who raise roses and beans in stoves, can soon destroy the green flies which cover the stalks and buds of roses, and the insects which appear like mildew on kidney-beans, by the assistance of the fumigating bellows.

5. Nurserymen. — When the young shoots of standard cherry-trees, or any other trees, are covered with the black dolphin-flies, an infusion is made with the leaves and stalks of tobacco. A quantity is put into an earthen pan, or small oblong wooden trough. One person holds this up; whilst another gently bends the top of each tree, and lets the branches remain about a minute in the liquor, which destroys them.

6. Graziers, when their sheep are infected with the scab, find relief by making a sheep-water with an infusion of the leaves and stalks. Moles, when only a few hills are at first observed, may probably be soon driven out of the ground by fumigating their holes.

7. Herb-tobacco is also greatly improved by having some of the leaves, when dried, cut with

a pair of scissors, and mixed with the herbs in any quantity you may think proper, according to the strength you require, and save you the expense of buying tobacco.

The herbs generally used for this purpose are colt's-foot and wood-betony leaves, the leaves and flowers of lavender, rosemary, thyme, and some others of the like nature.

INSTRUCTIONS FOR BREEDING CANARY BIRDS AND THE PROPER TREATMENT OF THE YOUNG.

Location for Breeding. — If you intend to breed your birds flying at large in a room, and have a choice, choose one of the windows which look to the south-east. If in cages, place them in the same situation, for the same purpose, to have the benefit of the morning sun, which is very beneficial, especially to the young birds. If you breed in a room, you must have one or two windows latticed with wire, so put on that you can raise the window to admit the air when it is mild, and shut it down when cold. It is better not to have the open windows opposite one to the other, as this makes a draft through the room, which I have found by experience to be injurious to the

young birds, especially when moulting. If you use cages, hang them on the wall opposite the windows, where they will have the early sunshine longest: this is much better than hanging them on the roof or near the window.

Pairing. — If the weather is mild, you may put your birds together about the first of March. Those that are intended to be bred in a room had better be put in a cage for ten or twelve days to pair: they may pair before that time. Those who are not familiar with birds may know that they are paired by seeing them feed each other. They may then be turned into the room, where there are nesting-places prepared for them. You need not be alarmed if they should fight a little, as those fighting birds generally breed the best. I have seen a female keep the male down in the bottom of the cage for a couple of days, and not allow him to get on a perch. She would sit on the top perch, stooping down, with her wings half stretched like a hawk; and if he should dare to come any nearer to her, by even getting on the lower perch, she would pounce upon him like a falcon on its prey, and knock him down to his former position at the bottom of the cage. At last he will get desperate, pluck up courage, and succeed in placing her in the situation that he was formerly; but he will be more merciful than she was, for he will not keep her there long: they

will soon make up matters, and raise a large family. Birds intended to be paired in the spring should not be kept together in the winter, as the male will not sing so well, and they will not breed so readily when the breeding-season comes. When your birds begin to moult, their breeding, for the season is over: they should then be separated and well fed, and your attention directed to the young. In pairing birds that are of different colors, there are some rules to be observed, that you may have those colors pure and bright in your young birds. In pairing the male primitive green canary (dark green above and yellow below) with a pure white or bright yellow female, there may be some of the brood like the male, and some like the female, or part mottled like both. The young will be strong and healthy, and the males good singers, as the dark-green birds are generally excellent songsters: the colors, also, will be pure and bright. Many years ago, I bred a pair of dark-green canaries; in the first brood, there were two yellow birds. This rather surprised me until I thought of the cause: one of the old birds, or perhaps both, had been produced by yellow and green canaries. If you wish to have pure yellow birds, pair a bright yellow male with the whitest hen you can procure; if mottled or splashed birds, pair a bright yellow male with a bright mottled female, or a mottled male with a

pure white female.* The blending of the colors of these birds has arrived to such a height of late, and the bird-fanciers of Europe have, by mixing, got them so striped, streaked, spotted, and speckled, that it must be difficult for one poor little canary-bird to know another. But not only in color have they transmogrified them; for as the Flat-head Indians are said to flatten the heads of their offspring, so we might almost suppose that they stretched out the young of the canary-bird, for they have got some of them as long as two common birds. For some of those birds, high prices are given; but it is mere fancy: the breed is not superior, except in the opinion of some to the eye. The long birds are tender and delicate, and will not bear the vicissitudes of our climate like the others. And for song, I have had a stout original green canary, or a good strong yellow bird, that has been bred here, that you might hang in an attic all winter without fire, which will sing as sweet a note as any long bird I have ever heard. Never pair birds of the same family together: if you wish to breed any of your young birds, exchange with some of your neighbors, or purchase mates for them. This close

* Do not pair two mottled or speckled birds, as the colors will be faint or nearly; or two yellow birds, except they be very large and pure, as they will degenerate in size and color; nor two crested birds, as the crests of some will be imperfect.

breeding degenerates the birds, and finally they become good for nothing.

Breeding Cages, Nests, &c. — I have bred canaries in rooms and in cages; and I prefer the latter method, not only because I have been more successful in this way, but I think there is more pleasure and gratification in breeding in cages. You can go close up to the cage, and look at them when feeding their young, without startling them; or take down the nests, and see if all is right, and attend to their little wants, without frightening other hens off their nests, and have them flying around you. And there is no fear of confusion amongst them, or of their quarrelling together, as I have seen them in a room; for birds will get irritated sometimes as well as men, and fight too. Two or three years ago, I had about fifteen females, all sitting on eggs together in nests in a room. For a few days, they all sat well; and I had every prospect of having a large family of young canaries, when one lady-bird began to get restless, and come off her nest oftener than was necessary to eat. Then she began to visit her neighbors, and at last got, like some other lady-birds, to be a complete gadder abroad; and we almost gave up all hopes of her raising her family, and thought some of removing her out of the community. One day, in my absence (as there are degrees in crime), she had commenced

pilfering from some of her steady neighbors. They had resented, of course: then came the tug of war, and Greek met Greek. The males had interfered to make peace, as was their bounden duty. The other lady-birds, seeing their lords in danger, had come to the rescue; and there was nothing but riot and confusion in this hitherto peaceful community. And, when I arrived, I found the floor strewed with broken eggs, and fragments of nests; and, where I had expected a fine harvest of young canaries, all was ruin and desolation. I immediately removed the delinquent, and two or three of the most furious of the combatants; but the mischief was done. This naughty female had imbued them all with her wicked spirit; and they fought and quarrelled, quarrelled and fought, forsook their nests, or fought over them, until they broke the eggs in them, and from the whole I do not believe I had ten young birds.

A cage, to breed a pair of birds comfortably, should not be less than eighteen inches long. To each corner opposite the door, pretty near the top, put a ring of common cage-wire. Take two of those little baskets which are imported from Germany every season, and after putting in a little tow or oakum (the last is a good preventive against those little red mites), to fill them up, as they are made rather deep, line them inside with

a piece of new woollen flannel (which is better than cotton), sew it well through the basket with linen thread, and make it smooth inside. It will then be something like a teacup. Then fit the rings in the cage to the nests, and make them fast by turning the ends over, and driving them into the rail of the cage. Let the nests go pretty well down, so as not to tilt when the bird hops on them; and it is well to put a little edge on the top of them, so they will not go down through. Make them fit easy, so that you can take them out, and look at the eggs or young. If you live in the country, you may make the baskets yourself, of twigs, or splints of wood; then take some cotton-wicking, and cut it in short pieces, and a few feathers. When the bird lays, if those materials are not put in snugly, I always take them out, as they are apt to catch their feet, and pull the eggs out of the nest; then the eggs lie on the flannel, which is quite sufficient. Put in both your nests when you put in your birds, and let the female make her choice. This is necessary; for, when the young birds are ten days old, she will leave the care of them to the male, who will rear them, and lay again in the other nest. When the young leave a nest, take it out, and put in a new one; or take all the lining of it, bake it in the oven, or throw it into boiling water, and then line it anew. These precautions are necessary to destroy any

of those mites which may have got about the nests, or prevent their breeding. This simple method of preparing the nests, I have found the best for the comfort and convenience of the birds; and I have been very successful in breeding them. It may be sufficient to say, that, from a pair of birds, I had twenty-one young ones in one season, all alive and well. If you wish your birds to build their own nests, in place of the baskets, put up boxes four inches square, and three inches deep, made of thin wood;* then furnish your birds with some fine, dry grass (such as grows about the roots of bushes and fences is good), and some cotton wick cut in short pieces; also some deer's or cow's hair. The hair should be washed clean, then put into a warm oven, or dried before the fire. Strew those materials over the bottom of the cage, or put them separately in pieces of net, and hang them in the corners of the cage, and they will pull them out as they want them. It is better not to put but one box in at first, as they may amuse themselves by carrying the materials from one to another, and thereby lose time. Before you put in the box, take some of the grass, and fashion the frame of a nest as neat

* Camphor-wood or red cedar is the best, if it can be procured, (as the mites will not breed in it): if not, common cedar. Nail them close together in the joints, and give them a good coat of copal varnish, and hang them in the sun to dry.

as you can (this will save time, and the labor of the birds), and they will finish it themselves; or rather she will, for the female is the master-builder, the male only an assistant, or laborer, bringing her the materials. I have seen a female pounce upon the poor male, and give him an unmerciful thrashing, when he had merely hopped in to try how it would suit him, while she was engaged building it, and had probably gone to eat. If you wish the birds to do the whole of the building of the nest, put in the box empty, and they will carry in all the grass, or hay, with the other materials, themselves.

Hatching and Treatment of the Young. — On putting your birds in the cage to pair, give one-third of a hard-boiled egg to a pair, every morning, yolk, white, and shell; add to their portion of hemp and canary seed some rape, and put in the cage, or stick in the wires, a piece of old lime-plaster, from a ceiling or wall.* When the female commences laying, she will lay an egg every morning until her complement is laid. The number is generally five; sometimes six, or four; and some young hens will set upon three. Some females will not set until they have done laying; others will commence setting on laying the first

* Some use cuttle-fish bone: it is the lime contained in the bone that is useful; therefore the old plaster is superior.

egg; and it has been said by some, that, in this case, the egg should be taken out, and a false one put in its place, until the complement is laid, and then the whole put back into the nest again. This is taking a great deal of trouble, without any necessity for it, and the risk of breaking the eggs into the bargain; for if the young are hatched, one every morning, the one is nourished and fed before the other comes, and so on; and in the other case, where all are hatched together, the male assists in nourishing and feeding them, and all is well.

There is very often one bad egg in the nest. When the youngest is two days old, take the box or basket which contains the nest,* in your left hand, introduce the little finger of the right gently under the young, and get out the bad egg, as it takes up room in the nest, and, if it should get broke, is very unpleasant. When I had six young at a hatching, which I have sometimes had, I prepared a large nest, and, when they were five or six days old, removed them gently into it, as the common-sized nests, when they grew older, would prove too small for them. When the young are hatched, increase the egg to one-half or more; the whole of it as before. Some give only the yolk: this is wrong. When very young, the yolk is too

* Both boxes and basket should be so fixed, that they can be taken down for this purpose, and occasionally to see how the young thrive.

heating and rich for them. Add to this a slice of good baker's bread, moistened with pure water: the parents will then feed with the three together.* Be careful that the bread is not sour. If there are four or five young, they may require fresh egg and bread in the afternoon, as they grow older. Give them fresh bread and egg every morning, as soon after sunrise as is convenient; and, if the weather is warm, about noon remove what may be in the saucer, rinse it with water, and give them fresh egg and bread. The male takes an active part in the feeding of the young whenever they are hatched; but the female alone sits on them: and when they get large, and begin to feather, she will sit by them, or on the side of the nest, at night. When they are about ten days old (as before mentioned), she will leave the care alltogether to the male, and lay again in the other nest. The male will feed them regularly, and also his mate, whenever she calls him, which she will do whenever she does not feel disposed to leave her nest. He will attend to his duty diligently; and the young are sometimes safer under the charge of the male than the female, especially if she is a young mother. I have often gazed with pleasure on the male, after having a fine brood of young left under his charge. He

* I have seen a parent-bird take a pick of the yolk, of the white, and of the bread, to feed a bird not many hours old.

would first hop gently on the nest, and survey them all over, with delight sparkling in his eyes; and when, on his uttering a low note, they would raise their heads and open their mouths, overjoyed, he would quickly obey the call, fly down to the bottom of the cage, take two or three mouthfuls, then fly up, and put it into one or two of their little throats, then down again; and when they were all satisfied, and he would take care that there were none unfed, he would hop on his roost, and pour forth strains of melody which seemed to me to say, "Now I have done my duty, I am happy: I will now sing my best song." When the young begin to eat alone, and pick about the bottom of the cage, take an equal part of hemp and rape seed, and bruise it in a mortar, or on a table with a rolling-pin; put it in a saucer or other shoal vessel, then into the cage. Whenever you think they can eat well enough to be alone, remove them out of the breeding-cage, as they annoy the mother when setting, by crowding around the nest; and she does not scruple, sometimes, to rob them of a few of their feathers to keep her eggs warm. When you remove your young, put them into a pretty large cage, where they can have plenty of room to fly: they will feather better, and be clean. Remove them in the morning; and if they should keep chirping all day, and not eat, in the afternoon take out the

male from the breeding-cage, and put him in beside them, and he will feed them all. Keep him there until near night; then put him back to his mate again, and they will eat the next day without any trouble. Put in the rape and hemp seed, bruised, as formerly: this I have found very beneficial for young birds. Put in also, canary-seed, and egg and bread, as formerly; withdraw all the soft food gradually, but as soon as you can, as they will thrive better, and be much more healthy and vigorous, when you get them to live on their seed alone.

Moulting of the Young.— Although the moulting of young birds is only partial, as they do not in general shed their wing or tail feathers, they require more care and attention than at their future moultings. It generally takes place when they are about two months old, sometimes when younger or older. At this time, they sleep sometimes during the day, with their head under their wing. They now require nourishing food, and to be kept moderately warm. If the weather is warm, open the window, and let them have air; but do not put the cage where there is a draft of air: the same if in a room; do not have opposite windows open, and be careful to shut them when the cool of the evening approaches. Let them also have the benefit of the sunshine morning and evening. If too warm in the middle of the day,

drop the curtain of the window, or throw something over the cage. With the seed, as before, give, two or three times a week, a bit of baker's bread moistened with milk, and, once or twice a week, a portion of hard-boiled egg, chopped fine; and occasionally some lettuce or cabbage, and keep a piece of rusty iron in the water-dish. By using these precautions, and administering to their little wants, you will soon have your feathered friends in good health and beautiful plumage; and they will amply repay you for your care and attention, by their enlivening and cheerful songs during the ensuing winter.

Moulting of the Old Birds. — The old birds generally moult about the beginning of autumn. They require also nourishing food at this period. Give them freely of rape-seed, a bit of bread dipped in milk, and, occasionally, a bit of hard-boiled egg, and lettuce or cabbage. Sometimes it happens, that, from some cause, this operation of Nature is retarded or stopped, and the bird does not shed his old feathers, or does it very slowly: in this case I have found it efficacious to put a few cloves in the water, and give them plenty of green stuff. If the weather is cold when they moult, do not expose them to it; but, if mild and warm, I have found it beneficial to an old bird, when moulting, to be kept outside of a window or door; at least, let them have plenty of free air,

and keep a rusty nail in their water. In moulting, the proper treatment of the old birds is about the same as the young, only they do not require so much care and attention, as the most hazardous time with canaries is their first moulting.

DISEASES TO WHICH CANARIES AND OTHER BIRDS ARE LIABLE IN A DOMESTIC STATE.

Inflammation of the Bowels. — Young canaries when fed upon egg and bread, and such nutritious food, get sick; and their appearance indicates an attack of this disorder. The skin of the belly is distended, and the feathers come off, and leave the skin bare, and the veins under it are blue and surcharged with blood; and, on dissection, the bowels are found inflamed, and black towards the vent. On the first appearance of this disorder, withdraw the rich food, and give your birds a little lettuce-seed and canary alone, plenty of green stuff, and put a rusty nail in the water. But in prescribing for the diseases of birds, and other animals too, the old adage holds good, that "An ounce of prevention is worth a pound of cure;" and to avoid this, and other diseases, I endeavor to get my young canaries from their soft and luscious food as soon as possible, to their plain seed, on which they are much healthier.

Constipation, or Costiveness. — The good old singing canaries, and other birds who live upon

seeds, are often troubled with this ailment: it may be discovered by the bird jerking down his body when he voids, or tries to, and raising his tail. A bit of bread dipped in milk, and a blade of cabbage, will cure it. It is well to stick a bit of bread moistened with milk in the cages of your seed-birds occasionally: it will prove beneficial to them.

Epilepsy. — This disease some birds are subject to: bleeding is prescribed by some, by cutting one or two of the nails of the claws until they bleed. I prefer cold baths. Many years ago I had a pair of Cardinal Grossbeaks, both in one cage. One day the female had one of these fits. When I first discovered her, I found her lying on her back at the bottom of the cage, pulling her feathers out; and she had succeeded in stripping her lower parts completely bare of feathers. I immediately took her out, and plunged her into the water-pail; and, after allowing her time to breathe, I put her in again. Being determined to test the virtue of this mode of proceeding, I put her into the water a third time, and then put her back into the cage. I kept her, I think, nearly three months after this: her feathers soon came on again, and she sang sweetly,* and never had another fit, at least with me.

* The female of this species sings.

Asthma. — If you have a bird attacked with this disorder, which you may know by its making a croaking or wheezing noise when it breathes, take a piece of baker's bread, soak it in water, then squeeze the water out of it, and boil it well in milk. Give them freely of this every day, with plenty of cabbage or lettuce; and, if your bird is not a very old one, it will soon recover.

Diarrhœa. — Put a piece of rusty iron in your water-dish (and do not change the water oftener than twice a week), and bread boiled in milk, as for asthma; boil it well in this case, so as when it is cold it will cut like cheese; give them freely of it, and plenty of vegetables. For young canaries and other seed-birds, mix with the paste some scalded rape-seed. This mode of treatment for this disease is generally successful.

Diseases of the Feet. — Thrushes and other birds are sometimes troubled with this. It is often occasioned by the feet and legs getting dry and hard, and the scales contracted; and the shedding of them being protracted, causes much pain to the bird, and often lameness. Wash the feet and shanks of the bird once or twice a day with some warm milk and water, and rub them with a little lard: when they get soft, remove the scales gently. This treatment will soon effect a cure. By getting it caught in the wires, or from some other cause, a bird will sometimes break its leg.

In this case, take the perches out of the cage, and spread a piece of flannel smoothly on the bottom. If you have glasses in your cage, take them out, and stop up the holes. Then put the food into very shallow vessels, so that the bird can eat and drink without getting up or rising on its legs. Nature will now do the rest: the bone will soon knit, and the bird get well. By this mode of treatment, I have in general been successful in effecting a complete cure. The claws of a bird that has been kept in a cage for some time will grow long, so as to annoy the bird in leaping from perch to perch in catching round them, and might be the cause of the bird's injuring itself as before mentioned. In this case, take the bird in your left hand, and, holding its leg between your fingers, cut the nails off the claws with a pair of sharp scissors. You need not cut too far up, to touch the quick, as it hurts the bird (but it will not injure it): if you should the first, cut less off the others.

Moulting.—Though not properly speaking a disease, yet during this operation of nature all birds are more or less sick, and some suffer severely; and it is rather remarkable, that this is the case even among birds of the same species, some getting through the operation much easier than others. If we look at birds in a state of nature, we will find that at the time of moulting

they have their food in the greatest abundance, scattered around them in profusion, when they are least capable of making exertions to procure it. This mode of treatment of birds in a domestic state is here clearly pointed out. They require plenty of nourishing food, as near natural as we can possibly procure it. Worms, insects, and fruit, to those birds who eat them, — and to those who live upon dry seeds, bread dipped in milk, fruit and vegetables, — to supply the waste of moisture and strength occasioned by the growth of an entire new covering for their bodies.

Loss of Voice. — Sometimes it will happen that a bird, after moulting, does not sing. This, I think, proceeds rather from the notes escaping the memory, than any physical defect in the bird. By hanging a bird that has been brought to me in this state near a good singer, and feeding him well two or three days, he has soon found his voice again.

Mites. — These troublesome little insects first infest the cages, and then prey upon the poor birds. Under the ornaments on the heads of the posts, and under the perches, and about the head of the cage, are the places they are generally found. They are not so fond of the lower parts of the cage. I am happy to make public a destroyer of those tormentors of my feathered favorites, which I have used with complete suc-

cess, and without the least injury to the birds. Take about half an ounce of corrosive sublimate, and dissolve it in a pint of spirits of wine, and apply it with a hair-pencil. It kills the insects immediately, and then penetrates into the wood, leaving nothing that the bird can pick; and wherever you touch with it, there will be no insects, at least that season. This solution should be marked, and carefully put away, as it is rank poison.

What those who keep Birds ought not to do.— Do not keep a bird in a room that is painting, or has been newly painted, until the effluvia of the paint is completely gone.

Do not hang your bird over a stove, or above the mantel-piece, or over a grate which contains fire.

Do not put a bird and cage in a window, and then shut it down upon it: there is a draft then through the cage that may be injurious to the bird.

Do not wash your cage-bottom, but scrape it clean with a knife, and then put on some fresh gravel: the moisture tends to breed those little red mites, and is injurious to the bird.

Do not keep birds together all winter which you intend to breed in the spring. They will not do so well as if they were apart.

Do not keep single birds in a room where

others are breeding; and do not keep males and females, in breeding-season, in a room in separate cages, or you may lose your birds by what is called the pairing fever.

MISCELLANEOUS.

To hasten the Bloom of Flowers. — To hasten the bloom of flowers, use the following mixture: Nitrate or sulphate of ammonia, 4 oz.; nitrate of potash, 2 oz.; sugar, 1 oz.; hot water, 1 pint; dissolve, and keep well closed. Add twenty drops to the water used to surround the flowers, changing it each week.

Cut Flowers, to Preserve. — Cut flowers may be preserved longer by using a little nitrate of soda to the water in which they are put, or by placing them over a bell jar.

Colors for Confectionery, &c. — These should always be harmless. Liquid cochineal serves for reds; while sap-green, Prussian blue, yellow saffron, &c., afford innocent means of coloring sweetmeats, jellies, and liquors. Brandy may be colored with burnt sugar, and litmus gives a violet tinge.

To make Pictures of Birds by Means of their own Feathers. — Get a thin piece of board of any kind most convenient; let it be well seasoned,

however, that it may not warp. Paste a sheet of white paper over it, and let it dry. Then take any bird you wish to represent, and draw its outline on the paper in the attitude you desire, and of full size, adding what landscape, background, &c., you wish. This outline, so drawn, is afterwards to be filled up with the feathers from the bird, placing each feather in that part of the drawing corresponding to the part of the bird it was taken from. To do this, cover the representation with several coats of strong gum-water, letting it dry between each coat till it is of the thickness of a quarter. When your ground is thus prepared, take the feathers off from the bird, beginning at the tails, or points of the wings, as you must work upwards towards the head. These feathers must be prepared by cutting off all the downy part; and the larger feathers must have the insides of their shafts pared off to make them lie flat. To lay them on, make use of a pair of small pliers to hold them by; and, moistening the gummed ground with water, place each feather in its natural and proper situation. Keep each feather down, by putting a small leaden weight upon it, till you have another prepared to lay on. You must be careful not to let the gum come through the feathers, as it smears them, and, sticking to the bottoms of the weights, will be apt to pull the feathers off. When you have put

on all the feathers, you must cut a piece of round paper, and color it like the eye, which you may stick in its place; but the best way is to get small eyes made of glass. The bill, legs, and feet must be drawn and colored from nature. When it is finished, and adjusted to your mind, lay a sheet of paper upon it, and upon that a heavy weight to press it; which must remain till the whole is quite dry.

To take the Impression of any Butterfly in all its Colors. — Having taken a butterfly, kill it without spoiling its wings, which contrive to spread out as regularly as possible in a flying position. Then, with a small brush or pencil, take a piece of white paper; wash part of it with gum-water, a little thicker than ordinary, so that it may easily dry. Afterwards, laying your butterfly on the paper, cut off the body close to the wings, and, throwing it away, lay the paper on a smooth board with the fly upwards; and, laying another paper over that, put the whole preparation into a screw-press, and screw down very hard, letting it remain under that pressure for half an hour. Afterwards take off the wings of the butterfly, and you will find a perfect impression of them, with all their various colors marked distinctly, remaining on the paper. When this is done, draw between the wings of your impression the body of the butterfly, and color it after the insect itself.

To Make Artificial Volcanoes. — For this curious experiment, which enables us to assign a very probable cause for volcanoes, we are indebted to Lemery. Mix equal parts of pounded sulphur and iron filings; and, having formed the whole into a paste with water, bury a quantity of it, forty or fifty pounds for example, at about the depth of a foot below the surface of the earth. In ten or twelve hours afterwards, if the weather be warm, the earth will swell up and burst, and flames will issue out, which will enlarge the aperture, scattering around a yellow and blackish dust. It is not impossible that what is here seen in miniature takes place on a grand scale in volcanoes, as it is well known that they furnish abundance of sulphur and also metallic substances.

To Produce Artificial Lightning. — Provide a tin tube that is much larger on one side than the other, and in which there are several holes. Fill this tube with resin, in powder; and, when it is shook over the flame of a torch, it will produce a sudden corruscation, that strongly represents a flash of lightning. This is the manner in which lightning is produced at the theatres: it is not the flame itself that is to be seen, but its reflection only, as happens for the most part in Nature. It is in this manner that the flambeaux of the furies on the stage are constructed, except that, at the end of each of them, there is a match dipped in

spirits of wine, by means of which it is only necessary to shake them, and they will produce a sudden and very considerable flame.

ALASKA SCENERY.

Tree of Lead. — Dissolve an ounce of sugar of lead in a quart of clean water, and put it into a glass decanter or globe. Then suspend in the solution, near the top, a small piece of zinc of an irregular shape. Let it stand undisturbed for a day, and it will begin to shoot out into leaves, and apparently to vegetate. If left undisturbed for a few days, it will become extremely beautiful; but it must be moved with great caution. It may appear to those unacquainted with chemistry, that the piece of zinc actually puts out leaves; but this is a mistake, for, if the zinc be examined, it will be found nearly unaltered. This phenomenon is owing to the zinc having a greater attraction for oxygen than the lead has; consequently, it takes it from the oxyde of lead, which re-appears in its metallic state.

Arbor Martis, or Tree of Mars. — Dissolve iron filings in aquafortis moderately concentrated, till the acid is saturated; then add to it gradually a solution of fixed alkali, commonly called oil of tartar per deliquium. A strong effervescence will ensue; and the iron, instead of falling to the bot-

tom of the vessel, will afterwards rise so as to cover the sides, forming a multitude of ramifications heaped one upon the other, which will sometimes pass over the edge of the vessel, and extend themselves on the outside with all the appearance of a plant.

Permanent Ink for Marking Linen. — Take of lunar caustic (now called argentum nitratum) one drachm; weak solution or tincture of gall two drachms. The cloth must be first wetted with the following liquid, viz., salt of tartar, one ounce; water, one ounce and a half; and must be perfectly dry before any attempt is made to write upon it.

CONFECTIONERY.

Many kinds of confectionery can be easily made at any kitchen-stove, and with utensils generally found in every family.

The best kind of kettle to cook sugar in is a round-bottom copper-kettle, which can be had of any coppersmith, and is the form used by all confectioners. The advantage of a round bottom being, that the sirup is more easily stirred.

A wooden spatula, or stirring-stick, should always be used for stirring the sirup, never a metallic one of any kind. The advantages gained by making your own confectionery are: first, it is

much more economical, as most kinds can be made at a cost of but little more than half the price it is ordinarily sold for.

Second, you know that what you eat is perfectly clean, or at least you know whether it *is* clean or not; possibly that which you buy may not be in all cases.

And, third, you are certain not to eat any poisonous coloring matter, or other ingredients at all detrimental to health.

It is generally admitted by physicians, at the present day, that good confectionery is not in the least injurious to health if eaten at the right time and in proper quantities. On the contrary, it is recommended and frequently prescribed by the medical faculty, in certain cases, as an agreeable and wholesome article of diet.

Much has been said in regard to the effect of confectionery upon the teeth. Some have strongly argued that it was highly injurious to them, causing them to decay rapidly, &c.; while others, again, have as strongly asserted that it was no more injurious to them than any ordinary article of diet, and, to prove their theory correct, refer to the Southern negroes, who probably eat more sugar than any other class of people in the world, and yet, almost invariably, they have sound and brilliantly-white teeth. I see no reason why sugar, or any of its compounds, should have

any injurious effects upon the teeth, and believe the time is fast coming when such an idea will be as obsolete as the Salem witchcraft and other exploded whims.

With the experience of years engaged in the manufacture of confectionery, eating it freely and abundantly every day, I can confidently affirm, that I never enjoyed better health in my life; and, as for its effects upon the teeth, had it been in the least injurious, I should long since have been obliged to depend upon my gums for masticating my food.

The following recipes are for making several kinds of confectionery, that can be cooked by any one over a common kitchen-stove.

CHOCOLATE CARAMEL.

Take common granulated sugar, 10 lbs.; water, 1 qt.; and 1qt. of milk; put into the kettle, and place over the fire, and commence stirring at once.

When well boiling, add 1 teaspoonful of pure cream-of-tartar, boil a short time, and then add ¼ lb. of chocolate, and ¼ lb. of butter. Continue boiling and constant stirring till the steam from the kettle begins to smell slightly as though the sugar was burning; take the kettle from the fire, and drop a spoonful of the caramel into a basin of cold water. If it cools hard, so as to snap

brittle when broken, it is sufficiently cooked. Pour it now into well-greased pans, and, when partially cooled, divide it off into squares with a common case-knife.

THE CELEBRATED SOUTHMAYD MOLASSES CANDY.

Take 10 lbs. of golden-yellow sugar, 1 qt. of best quality molasses (not sirup), add 1 qt. of water, place the whole over the fire, and stir well until the sugar is all dissolved.

When well boiling, add, first, one teaspoonful of pure cream-of-tartar, then ¼ lb. of butter; let boil till a tablespoonful of it, when dropped in cold water, will break between the fingers as short and brittle as ordinary sugar-candy.

Pour upon a well-greased slab, and, when cold enough, pull upon the hook till nearly white.

FRENCH CREAM.

Take of granulated sugar 10 lbs., water 2 qts., mix, and place over the fire.

Commence stirring at once till it commences to boil, but no longer. When well boiling, add one teaspoonful of pure cream-of-tartar, boil rapidly for twenty or thirty minutes. Now drop a teaspoonful of it into a basin of cold water; and, if it has a soft waxy appearance, it is done, and should be set away in a cold place to cool.

When nearly, but not quite cold, commence stirring with a flat piece of wood, and it will assume a beautiful snowy-white appearance. It will now cool hard, and can be melted slowly, and with constant but very careful stirring, so as to be poured off into moulds if desired. While thus liquified, it can be flavored, as you choose, by adding whatever essence or essential oil you wish to flavor it with. From this is made chocolate cream drops ladies' cream drops, cream dates, &c.

BUTTER TAFFEE.

This is made thus: sugar 10 lbs., water 1 qt., milk 1 qt.; place over the fire, and stir till it boils. When well boiling, add one teaspoonful of cream-of-tartar, and ½ lb. of butter; boil till it has a brittle snap when cooled in water, and broken.

PEPPERMINTS.

Granulated sugar, same quantity, and cooked precisely the same, only not adding the cream-of-tartar.

When sufficiently cooked, or when cooked so as to appear waxy when cooled in water, remove from the fire, and add ½ teaspoonful of oil of peppermint.

Now stir in gradually about two teacupfuls of granulated sugar; and, when the mass commences

to thicken, pour it off in drops upon tins or plates, and it will cool hard.

LOZENGES.

Peppermint Lozenges Ingredients. — 1 oz. of picked gum-tragacanth, soaked in 2 oz. of tepid or slightly warm water, in a mug or large-sized cup (this takes some six hours), and afterwards squeezed and wrung through a cloth; 1½lb. of finely-powdered sugar, and a teaspoonful of essence of peppermint.

Work the prepared gum with the flattened hand on a very clean marble slab, until it becomes perfectly white and elastic; then gradually work in the sugar, adding the peppermint when the paste has become a compact, smooth, elastic, substance. A few drops of thick wet cobalt blue should also be added while working the paste, to give it a brilliant whiteness.

The paste thus prepared must be rolled out upon the marble with sugar finely dredged over it to double the thickness of pennies, and can be cut out into rounds or any shape desired, and dried hard.

Ginger Lozenges. — Same as the foregoing, only adding essence of ginger, and 1 oz. of ground ginger, instead of the peppermint.

Other flavors can be made in like manner.

THE BARBERS' AND HAIR-DRESSERS'

PRIVATE RECIPE BOOK.

HAIR COSMETICS.

COMPOUNDS TO PROMOTE THE GROWTH OF THE HAIR.

POMADES FOR THE CURE OF BALDNESS.

DUPUYTREN'S POMADE. — The recipe given by Bateman and Rennie, for this celebrated preparation, namely, almond oil, lard, suet, and essential oils, is remarkable as having omitted the active ingredient. It is probable that the preparation first employed by M. Dupuytren was more simple in its form than what he subsequently used and adopted, but cantharides was always the essential constituent. The first formula we met with was, tincture of cantharides (made according to the Paris Codex, 1 part of flies to 8 of proof spirit) 1 part, lard 9 parts. The following are said more nearly to represent the compound

in its improved and more elegant form. M. Cap prescribes: beef marrow 2 oz., spirituous extract of cantharides (made by evaporating the above tincture) 8 gr., rose oil 1 dr., essence of lemon 50 drops. M. Fountaine directs: beef marrow 4 oz., calomel 2½ dr., extract of cantharides 18 gr., otto of roses 2 drops. But the following, by M. Recluz, is said to have been acknowledged by Dupuytren as the true formula: beef marrow 6 oz., nervine balsam* 2 oz., Peruvian balsam 2 oz., oil of almonds 1½ oz., extract of cantharides 16 gr.; melt the marrow and nervine balsam with the oil, strain, add the balsam of Peru, and lastly the extract dissolved in the rectified spirit. Guibourt says, no better than the following can be used: beef marrow 1 oz., nervine balsam 1 oz., rose oil 1 dr., extract of cantharides dissolved in spirit 6 gr. These pomades should be rubbed on the scalp once or twice a day for some weeks. If soreness is produced, it should be less frequently applied.

2. POMADE CONTRE L. ALOPECIE. — Fresh lemon juice 1 dr., extract of Peruvian bark (by cold water) 2 dr., marrow 2 oz., tincture of cantharides 1 dr., oil of lemon 20 drops, oil bergamot 10 drops; mix. First wash the head with soap

*This is made by melting together 4 oz. each of beef marrow and oil of mace, and adding 2 dr. of balsam of tolu and 1 dr. each of oil of cloves and camphor dissolved in ½ oz. of rectified spirit.

and water, with a little cologne, then rub it dry. Next morning rub in a small lump of pomade and repeat it daily. In four or five weeks the cure of baldness is effected.

CASTOR OIL POMADE. — Olive oil 5 oz., almond oil 2 oz., castor oil 1 oz., spermaceti ½ oz., lard 8 oz. Melt the spermaceti and add the lard, add afterwards the oils, then mix, let it cool, and when nearly cold add the following scent: essence of bergamot 10 drops, essence of ambergris 20 drops, oil of lavender 1 drop, otto of rosé 3 drops.

POMADE DIVINE. — Spermaceti 4 oz., lard 8 oz., almond oil 12 oz., gum benzoin 4 oz., vanilla beans 1½ oz. Digest the whole in a steam bath for six hours, then strain.

POMADE DE LAVENDER. — Lard 2½ lbs., lavender flowers 10 lbs., white wax 4 oz.; add 2 lbs. of the flowers to the melted lard and wax, cork the whole in a jar and simmer in a water-bath for six hours, strain and proceed to add the remaining flowers. When completed wash it well, remelt it and fill small pots, which should be well covered with wet bladder or waxed paper. This is the method adopted for any pomatum of flowers, but most pomades are made by adding the essential oils to the lard and wax, and they serve equally well.

CAZENAVE'S REMEDY FOR BALDNESS. — Beef marrow 1 oz., tincture of cantharides 1 dr.,

powdered cinnamon 1 dr. To be applied night and morning, the head being first washed with salt and water. Keep the hair short.

DR. CATTELL'S is the same, substituting 10 drops each, oil of origanum and bergamot for cinnamon.

MARROW POMADE. — Beef marrow 1 oz., castor oil ½ oz., tincture of cantharides 1 dr., essential oil of bitter almonds and of lemon each 12 drops.

SOUBEIRAN. — Beef marrow 3 dr., almond oil 1 dr., sulphate of quinine 15 gr., otto of rose 2 drops.

DR. NELIGAN'S POMADE. — Prepared lard 2 oz., white wax 2 dr., melt together, remove from the fire, and add 2 dr. balsam of tolu, 20 drops oil of rosemary, and in chronic cases 1 dr. tincture of cantharides.

CAMPHOR POMADE. — Camphor 1 scruple, citrine ointment 2 dr., spermaceti cerate 6 dr.; mix, — applied every night.

POMADE PHILOCOME. — Powdered cincona ½ dr., oil of almonds 2 dr., beef marrow 6 dr., oil bergamot 6 drops, balsam of Peru 20 drops; mix. — *Dorvault.*

DRESSING POMADE. — Oil of sweet almonds 1 pint, spermaceti 1½ oz., purified lard 2 oz., melt with a gentle heat; when nearly cold add any agreeable scent and pour into pots or wide-mouthed bottles.

GERMAN POMADE FOR STRENGTHENING THE HAIR. —Take 8 oz. of purified marrow, melt it in a glass or stone ware vessel, and add 1½ oz. of fresh bay leaves, 1 oz. of orange leaves, 1 oz. of bitter almonds, ½ oz. of nutmegs, ½ oz. of cloves, and 1 dr. of vanilla, all bruised. Cover the vessel and let the whole digest for twenty-four hours with a gentle heat; strain while warm through linen, and stir it as it cools.

LIQUID COMPOUNDS FOR THE CURE AND PREVENTION OF BALDNESS.

MAGIC TONIC DRESSING. — To one gallon of soft water add 1½ lb. of glycerine, 16 oz. tincture cantharides, ½ oz. oil of jasmine, ¼ oz. of verbena, 1 oz. essence of lemon, and 2 oz. essence of bergamot. Let it stand twenty-four hours, and it is fit for use. This dressing keeps the hair soft, moist, and glossy, but it is not oily or greasy, nor will the hair dressed with it soil the finest linen. The hair should be previously cleansed from all oils, natural or applied, by washing thoroughly with a weak solution of borax water and rubbed dry.

This is the most valuable recipe now known for a tonic dressing. It can be confidently recommended in nine cases out of ten to keep the hair from falling. At first it should be used daily, say for a week or ten days, then every alternate

day. The head should be washed in warm soapsuds once in two weeks, to keep the pores of the scalp in a clean and healthy condition.

This dressing can be made with less expense, if preferred, as follows: 1 gal. soft water, 1½ lb. glycerine, 16 oz. tincture cantharides, 1½ dr. oil of citronella rose.

DR. LOCOCK'S LOTION. — Oil of mace ½ oz., olive oil 2 dr., water of ammonia ½ dr., spirit of rosemary 1 oz., rose-water 2½ oz.; mix.

MR. ERASMUS WILSON'S. — Eau de cologne 2 oz., tincture cantharides 2 dr., oil of rosemary and lavender each 10 drops.

ACTON'S. — Equal parts of rectified spirit, castor oil, and eau de cologne.

ACTON'S STRONGER. — Equal parts honey-water, and tincture of cantharides.

TONIC LOTION, 1. — Tincture of cantharides 3 dr., acetate of copper 3 gr., oil of almonds and castor oil, of each a fluid oz.; perfume as you choose. A small quantity applied to the roots of the hair every morning.

TONIC LOTION, 2. — Vinegar of cantharides ½ oz., eau de cologne 1 oz., rose water 1 oz.; mix.

LOTION, 3. — Castor oil, tincture of cantharides, and lavender water, equal parts.

AMERICAN SHAMPOO LOTION. — Rum 3 quarts, spirit of wine 1 pint, water 1 pint, tincture of cantharides ½ oz., carbonate of ammonia ½ oz., salt of tartar 1 oz. Rub it on well and after-

wards wash with water. By omitting the salt of tartar it closely resembles balm of Columbia.

Dr. Landerer's. — Bay leaves 2 oz., cloves ¼ oz., spirit of lavender 4 oz., spirit of thyme 4 oz.; let stand for six days, strain and add ½ oz. of ether; rub on every morning.

Hair-Producing Lotion. — 10 gr. quinine, 4 oz. castor oil, 3 oz. 95 per ct. alcohol, 1 oz. tincture cantharides; perfume with bergamot, verbena, and orange.

The following preparation is said to have been successfully used as a remedy for baldness. Take of common box, which grows in garden borders (stems and leaves), four large handfuls, boil in 3 pints of water in a closely covered vessel for a quarter of an hour, and let the liquid stand in a covered earthen-ware jar for ten hours or more, strain and add 1½ oz. eau de cologne or lavender water to preserve it. The head should be well washed with this solution every morning.

Note. — The above ointments and lotions require to be used for some weeks to produce a decided effect, either in curing or preventing baldness. Those which contain cantharides in any form are the most active, and must be used with caution. They should be applied once or twice a day according to the effect produced; but if the scalp become sore, their use must be intermitted for a time, or longer intervals allowed, as the case may require. When employed to prevent the

hair falling off, or becoming gray, they need not be applied so frequently as for baldness.

POMATUMS, ETC.,

FOR EMBELLISHING, STRENGTHENING, AND CLEANSING THE HAIR.

These are composed usually of animal fats, variously perfumed. The lard, veal fat, beef and mutton suet, bear's fat and beef marrow, employed for this purpose, require to be prepared with great care. The following is perhaps the best mode: Cut the raw fat into pieces, carefully removing the fleshy and bloody portions of membrane, etc., and beat it in a marble mortar; melt it in a well-tinned vessel placed in boiling water, and strain the melted fat through a hair sieve without pressure (reserving the residue to be heated again and pressed for more fat to be used for commoner purposes). Keep the melted fat for some time gently warm without disturbing it; remove any scum which may have arisen, and pour off the clear fat, taking care that none of the dregs or watery liquid which have subsided pass with it. A mixture of these fats forms the basis of many varieties of pomades. Sometimes a little white wax is added. A greater degree of whiteness is said to be given by adding to the liquefied fat a few grains of citric acid. The

same end is promoted by assiduously beating the pomade, while cooling, with a wooden spatula.

To perfume pomatums, various essential oils are added; but the finer sorts are perfumed by infusing fresh flowers in the melted fats for some hours and straining; or, in other cases, the simple pomade is thinly spread on plates of glass set in frames and the fresh flowers stuck in the scored surface of the fat, — changing the flowers daily till the pomatum is sufficiently perfumed. As these compounds can seldom be prepared to advantage by the retailer, a few varieties only require to be noticed in this work.

Common Pomatum. — Mutton suet (prepared as above) 1 lb., prepared lard 3 lbs.; melt together in a water bath (that is a vessel placed in hot water), pour it into an earthen basin, and beat it assiduously with a wooden spatula. When sufficiently cool add 2 or 3 ounces of essence of bergamot or lemon and stir till nearly cold.

Rose Pomatum. — Prepared lard 16 oz., prepared suet 2 oz.; melt with a gentle heat and add 2 oz. of rose water and 6 drops of otto of roses; beat them well together and pour into pots before it is too cold. For making jasmine, violet, and orange pomade, put in the same quantity of water and 1 dr. of the essence.

Marrow Pomatum. — Beef marrow and beef suet colored with annotto, or curcuma, may be employed for this and other yellow pomatums;

perfume as you choose with bergamot, lemon rose geranium, otto of rose, or citronella.

POMADE FOR BEAUTIFYING THE HAIR. — Oil of sweet almonds 1 pint, spermaceti 1½ oz., purified lard 2 oz.; melt with a gentle heat; when nearly cold add any agreeable scent; color red by adding alkanet, or yellow by adding curcuma.

BEAR'S GREASE (*Artificial*). — Bear's grease is imitated by a mixture of prepared veal suet and beef marrow. It may be scented at pleasure. The following are some of the compounds sold under this name: —

1. Prepared suet 3 oz., lard 1 oz., olive oil 1 oz., oil of cloves 10 drops, compound tincture of benzoin 1 dr.; mix.

2. Lard 1 lb., solution of carbonate of potash 2 oz.; add any agreeable scent.

3. Olive oil 4 flasks, white wax 4 oz., spermaceti 2 oz.; scent with otto of rose and oil of bitter almonds.

GREEN BEAR'S GREASE. — Bear's grease digested with fresh walnut leaves and strained. This is repeated with more leaves till the pomade is sufficiently colored; it is then scented with oil of rosemary, thyme, and bergamot.

IMITATION BEAR'S GREASE. — Hog's lard 16 oz., flowers of benzoin and palm oil, of each ¼ of an oz.; melt together till combined, and stir until cold; scent at pleasure. This will keep a long time.

TONIC POMATUM. — Skim the fat from the top of calves' feet while boiling; mix with rum; shake together; apply night and morning.

MRS. ELLET'S POMATUM. — White mutton suet 4 lbs., well boiled in hot water (3 qts.) and washed to free it from salt; melt the suet when dried with 1½ lbs. fresh lard, and 2 lbs. of yellow wax; pour into an earthen vessel and stir till it is cold, then beat into it 30 drops of oil of cloves or any other essential oil you prefer for a perfume; if this is too hard, use less wax.

POMADE VICTORIA. — This pomade, if made carefully, will be found to give a beautiful gloss and softness to the hair. Honey ¼ lb., beeswax ½ oz. Simmer together for a few minutes, then strain. Scent with oil of lavender, almonds, and thyme. Stir till quite cold, or the honey and wax will separate.

HARD ROLL POMATUM. — 1. Suet 5 lbs., beeswax 8 oz., spermaceti 2 oz., oil of lavender or bergamot ½ oz.

2. Beef suet 16 oz., white or yellow wax 1 oz., 1 dr. lavender or bergamot.

3. Lard melted with one-third or one-half its weight of white wax, scented with jasmine, and poured into semi-cylindrical paper moulds when nearly set. Sold under the name of *Cosmetique*.

COLORED POMATUMS. — The coloring matters employed are annotto, alkanet, marigold, carmine, indigo, cobalt, blue, ivory black, umber, etc.

POMATUM PERFUMES. — 1. *Millefleur.* — Essence of ambergris 4 parts, essence lemon 3 parts, oil of cloves and lavender, each 2 parts, essence of bergamot 1 part; mix.

2. *Cowslip.* — Essence of bergamot 4 parts, essence of lemon 2 parts, oil of cloves 1 part; mix.

3. *Jonquil.* — Essence of bergamot and lemon, each 8 parts, oil of cloves 2 parts, sassafras and orange oils, each 1 part; mix.

4. *Frangipanni.* — Oil verbena and otto of rose, each 5 drops, essence of sweet bean 12 drops, rectified spirit 1 oz.; mix.

CIRCASSIAN CREAM. — Two flasks of olive oil, 3 oz. white wax, 2 oz. spermaceti, ½ oz. alkanet root. Digest the oil with the alkanet till colored, strain, melt the wax and spermaceti with the oil, and when sufficiently cool add 2½ dr. of English oil of lavender and ½ dr. essence of ambergris.

CRYSTALLINE CREAM. — Oil of almonds 8 oz., spermaceti 1 oz. Melt together; when a little cool add ½ oz. or less of essence of bergamot or any other perfume; put into wide mouthed bottles, and let stand till cold. *Camphorated* crystalline cream may be made by using camphorated oil instead of oil of almonds.

FOX'S CREAM. — Marrow pomatum 2 oz., oil of almonds 2 oz. Melt, and add while cooling, with constant stirring, essence of jasmine or bergamot 2 dr. — *Bateman.*

COLORS FOR POMADES, POMATUMS, HAIR-OILS, COSMETICS, ETC.

FOR RED — alkanet root is most commonly employed. It is cheap, and gives a very pleasing color. The spirituous solution stains marble of a deep-red. Wax tinged with alkanet and applied to warm marble leaves a flesh color. *For coloring tincture* take 2 oz. of alkanet root, put it in a large-mouthed bottle, cover it with 95 per cent. alcohol, tie a wet bladder over the mouth, and let it stand for ten or twelve days. It will then be ready for use.

FOR YELLOW — *curcuma* is the favorite article, prepared in the same manner as the preceding. Either of the above articles can be obtained at any wholesale druggist's.

HUILES ANTIQUE. — PERFUMED OILS FOR THE HAIR.

The basis of these oils is either almond oil, olive oil, or oil of bene. Whichever is used should be perfectly fresh and of the finest quality. The perfume is communicated in three ways: by infusing the flowers in the oil by a gentle heat; by placing layers of flowers alternately with folded cotton soaked in the oil in proper frames and pressing out the oil when sufficiently imbued with

the odor of the flowers; or simply by adding essential oils to the fixed oils. An example or two of each method will be sufficient.

Oil of Roses, by Infusion. — Heat in a water bath 1 lb. of pure olive oil, and add 1 lb. of fresh-picked petals of Provence roses. Let these remain together in the water bath for half an hour, then remove from the bath and leave them together for twenty-four hours, stirring them twice during the time. Strain through a cloth, and express all the oil. To this oil add fresh roses, and proceed as before, repeating this five or six times till the oil is sufficiently perfumed.

Oil of Jasmine, perfumed with the Flowers. — Fold pieces of white cotton cloth twice or four times, moisten them with fine olive oil, slightly pressing them, and placing them in proper frames. Then place on the cloths a rather thick layer of fresh gathered and dry jasmine flowers, carefully deprived of all green parts. In twenty-four hours carefully remove the flowers, and replace them by fresh ones till the oil is sufficiently perfumed. The oil is then expressed. The same method is employed in preparing oils from other delicate flowers, as violet, lily of the valley, etc.

Oil of Roses, common. — Fine olive or almond oil 1 pint, otto of roses 16 drops. If required red, color the oil with alkanet root and strain before adding the otto. For common sale, essence

of bergamot or lemon is often substituted wholly or in part for the more expensive otto.

PERFUMED OIL OF BERGAMOT, LEMON, ORANGE, ETC. — To oil of bene, or finest olive oil, or almond oil, add essential oil of bergamot, lemon, etc., q. s. (sufficient quantity.) For common purposes 1 dr. of essential oil may be added to 16 oz. of oil. Some recipes, however, direct as much as 1½ oz., or even 2 oz.

OIL OF AMBERGRIS AND MUSK. — Ambergris 2 dr., musk ½ dr. Grind them together in a mortar with a small quantity of oil, then add more oil to make up a pint, and let them stand together for twelve days, stirring them together occasionally; then decant or filter. Add half a pint of oil to the residue, for an oil of second quality.

COMMON OIL OF MUSK, OIL OF BENZOIN, OIL OF STYRAX, ETC., may be obtained by mixing a strong tincture of these drugs with fine oil, agitating them frequently together, and, after remaining some hours at rest, decanting the clear oil.

HUILE COMOGENE. — Mix equal parts of oil and spirit of rosemary with a few drops of oil of nutmeg. To be used daily.

HUILE DE PHENIX. — Clarified beef marrow 4 oz., lard 2 oz., oil of mace 4 oz. Melt together and strain through linen into a warm mortar, stir, and, when it begins to cool, add the following solution, and stir constantly till it is quite cold: Oil of cloves, lavender, mint, rosemary

sage, and thyme, of each ½ dr., balsam of tolu 4 dr., camphor 1 dr., rectified spirit 1 oz. Put the spirit and balsam in a phial, and place it in warm water till the solution is complete, then add the camphor and essential oils.

HUILE PHILOCOME D. AUBRIL. — Triturate together, without heat, equal parts of cold drawn nut oil, almond oil, and prepared beef marrow, adding any essential oil as a perfume.

MARROW OIL. — Clarified beef marrow or marrow pomatum, with enough almond or olive oil to bring it to the required consistence.

FLUID DE JAVA. — This consists of beef marrow, white wax, fine olive oil, and essential oils at pleasure.

MACASSAR OIL. — The oil made by the natives in the island is obtained by boiling the kernel of the fruit of a tree resembling the walnut, called in Malay *cadeau*. The oil is mixed with other ingredients and has a smell approaching that of creosote. But the Macassar oil sold in this country has probably no relation to the above except in name. The following recipe is given by GRAY: Olive oil 1 lb, oil of origanum 1 dr. Others add 1½ dr. of oil of rosemary. The following French compound is named Macassar oil rather to denote its properties, than from any resemblance either to the product of Macassar or to the oil sold under this name in England.

HUILE DE MACASSAR DE NAQUET. — Oil of

bene 14 pints, nut oil 7 pints, spirit of wine 1 quart, essence of bergamot 3 oz., spirit of orange (esprit de Portugal) 2 oz., otto of rose 2 dr., alkanet to color it. Digest them together with a gentle heat for an hour and shake frequently for a week. These oils neatly bottled and labelled suit those purchasers who admire lard when ticketed bear's grease.

LUSTRALS AND RESTORATIVE DRESSINGS.

No. 1. — To 8 oz. of alcohol, colored with a few drops of tincture of alkanet root, add 1 oz. of castor oil. Scent at pleasure.

No. 2. — To 8 oz. of alcohol (95 per cent.) add 1 oz. castor oil. Color with alkanet for red, or with curcuma for yellow, and perfume with geranium or verbena.

No. 3. — To 8 oz. of alcohol add 2 oz. of castor oil, 10 gr. of quinine, and ½ oz. aqua ammonia. Color red or yellow and perfume with citronella.

WASHES FOR THE HAIR.

VEGETABLE EXTRACTS FOR CLEANSING AND STRENGTHENING THE HAIR. No. 1. — Southern wood 2 oz., box leaves 6 oz., water 4 pints. Boil gently in a saucepan for ½ of an hour, strain,

and to each pint of the liquid add 2 oz. of spirit of rosemary and ½ dr. of salt of tartar (or 1 dr. of Naples soap).

No. 2. — Boil 1 lb. of rosemary in 2 quarts of water, filter, and add 1 oz. of spirit of lavender and ¼ oz. of Naples soap, or salt of tartar.

No. 3. — Borax 1 oz., powdered camphor ½ oz., boiling water 1 quart. When cold, strain or filter for use. Damp the hair with it frequently. This wash not only effectually cleanses and beautifies, but strengthens the hair, preserves the color, and prevents early baldness.

Invigorating Wash. *To thicken the hair and prevent its falling off.* — Put 4 lbs. of unadulterated honey into a still, and 12 handfuls of tendrils or vines of the box plant, and the same quantity of rosemary tops. Distil as cool and slowly as possible. The liquor may be allowed to drop until it tastes sour.

Wash for Removing Scurf and Promoting the Curling of the Hair. No. 1. — Beat up the yolk of an egg with a pint of clean rain-water. Apply it warm, and afterwards wash the head with warm water.

No. 2. — Lime-water 1 pint, distilled vinegar ¼ of a pint; mix.

BANDOLINES, OR COMPOUNDS FOR STIFFENING THE HAIR.

Eau Colante. — Dissolve without heat 4 oz.

of clear gum tragacanth, 2 lbs. of distilled or rose-water, and filter through coarse filtering paper.

BANDOLINE, OR FIXATEUR. — Vegetable mucilage with sufficient spirit to preserve it. Mucilage of quince seed is used. Mucilage of picked Irish moss carefully strained is said to answer still better. But the following is employed by some London perfumers: Finest picked gum tragacanth reduced to a coarse powder 1 oz., rose-water 1 pint. Put them into a wide-mouthed bottle, and shake them together daily for two or three days. Then strain with gentle pressure through fine linen or cambric. If required to be colored, infuse cochineal in the water used before making the mucilage. Another form is linseed (not bruised), a tablespoonful, water ½ pint. Boil for five minutes and strain.

ROSE BANDOLINE. — Gum tragacanth 6 oz., rose-water 1 gallon, otto of rose ½ dr. Steep the gum in water well, strain and mix thoroughly.

PARISIAN BANDOLINE. — Isinglass 1½ oz., water 1 pint, proof spirit 2 fluid oz. Dissolve the isinglass with water by heat, add the spirit, and scent with almond oil.

POMADE CALANTE, FOR FALSE CURLS. — Melt together in an earthen pipkin 24 oz. of fine Burgundy pitch and 8 oz. of white wax. Add 1 oz. of pomatum. Remove from the fire and add 4 oz. of brandy or other spirit; replace it on the fire till it boils slightly, then strain through linen,

adding bergamot or other perfume, and cast into moulds.

HAIR RENEWERS.

Dressings which restore Gray Hair to its Original Color by a gradual process. Also keep it moist and glossy without the use of grease or oils of any kind.

No. 1. — To 1 gallon of soft water add 1½ lbs. glycerine, 4 oz. sugar of lead, 1 oz. lac sulphur, 1½ dr. citronella rose oil. Mix, and let stand twenty-four hours.

No. 2. — To 1 gallon soft water add 1½ lbs. glycerine, 3 oz. of sugar of lead, 3 oz. lac sulphur, 6 oz. tincture cantharides, 1½ dr. citronella rose oil. *This is "Woodsum's Medicated Hair Renewer."*

No. 3. — This preparation operates faster, but is not so clean as either of the foregoing. Soft water 1 gallon, glycerine 1½ lbs., sugar of lead 4 oz., lac sulphur 4 oz., citronella 1½ dr.

No. 4. — This preparation gives the most general satisfaction, and is used by many barbers and hair-dressers at the present time. Soft water 1 gallon, sugar of lead 4 oz., lac sulphur 2 oz., tinct. cantharides 4 oz., oil of citronella rose 1½ dr.

No. 5. — This keeps the hair from turning gray, but will not change the color of the hair.

It makes a splendid dressing, keeps the hair soft, moist, and glossy, and is very cheap. Rose water 1 gallon, glycerine 1½ lbs., lac sulphur 1 oz., sugar of lead 1 oz. Mix and let stand twenty-four hours. These renewers are generally put up in 8 oz. oval bottles, and sold at retail all the way from 75 cents to $1.00 each. The actual cost is from 15 to 20 cents each, including bottles, labels, and everything. In using them the head should first be cleansed from all oils, either natural or applied, by washing well in borax water or Castile soap-suds; and the head should also be washed once in two or three weeks with either of these by any one using the renewers, in order to keep the pores of the scalp open and allow them free and healthy action. It must of course be kept where it will not freeze in cold weather, and, to have any effect upon the color of the hair, the bottle must be well shaken before using.

The great popularity of these preparations lies in the fact that they are really beneficial to the hair and scalp (other preparations being pretty generally conceded to be more or less injurious). They keep the hair moist without the aid of grease, which is always filthy and disgusting, and they keep the hair in its natural color.

DEPILATORIES — FOR REMOVING SUPERFLUOUS HAIR.

These require caution, as they are apt to injure

the skin Those which contain sulphuret of arsenic (opiment) it is better to avoid, as there is danger of its being absorbed into the system through the pores of the skin, and the object can be accomplished without its use. The powders require to be kept in close bottles or boxes, and no more should be mixed with liquid than is required to be used at once.

No. 1. — Mix lime and water to a thick cream, and pass through the mixture twenty-five or thirty times its volume of sulphuretted hydrogen gas. When the gas escapes stop the process. The pulpy mass is spread on paper and applied for twelve or fifteen minutes, then washed off with sponge and water. A serious objection to this is its disgusting smell.

No. 2. CHINESE. — Quick-lime 16 oz., pearl-ash 2 oz., liver of sulphur 2 oz.; reduce to a fine powder and keep in a close bottle; mix with water and apply to the skin; scrape off in two or three minutes with a wooden knife.

No. 3. — Mr. REDWOOD recommends a strong solution of sulphuret of barium, with sufficient powdered starch to form a paste; to be left on for a few minutes, then scraped off with the back of a knife.

No. 4. BONDET'S DEPILATORY. — Crystallized hydrosulphate of soda 3 parts, quick-lime in powder 10 parts; mix. To be mixed with water, etc., same as No. 2.

No. 5. RAYER'S. — Quick-lime 1 oz., carbonate of potash 2 oz., charcoal powder 1 dr.; mix and keep in a well-stopped bottle.

No. 6. ORRIS DEPILATORY. — Quick-lime 4 oz., orris powder 1½ oz.; mix. Apply as No. 1. The following depilatories contain orpiment (sulphuret of arsenic), a poisonous compound, and, if used at all, should be used with great care, as there is always danger of its being absorbed by the skin.

No. 7. DELCROIX. POUDRE-SUBTILE. — Orpiment 1 part, quick-lime and starch of each 11 parts; powder and mix; shave the hair off; apply the powder; mix to a paste with warm water, and wash it off when it becomes dry.

No. 8. — Quick-lime 12 oz., orpiment 1 dr., plain or scented hair powder 10 oz.; form the mixture into a paste at the time of using with a little water; apply to the parts, and wash off when dry.

No. 9. — Quick-lime 12 parts, hair powder 10 parts, powdered palm soap 4 parts, orpiment 1 part; used as the last.

No. 10. TURKISH RUSMA. — Quick-lime 8 parts, orpiment 1 part; mix into a paste at the time of using with white of egg and soap lees. This is more active than the preceding compound.

No. 10. COOLEY'S. — Quick-lime 1 oz., nitre 1 oz., orpiment 3 dr., sulphur 1 dr., soap lees 4 oz.; mix these to a mass and let it dry to the proper consistence.

Concerning these depilatories little can be said

in their favor. They were introduced into this country from the East, — rusma having been used in the harems of Asia for many ages. They are used to remove superfluous hair from the forehead and woman's beards; they are used also by some foreign Jews instead of a razor. They are all more or less dangerous and severe, and must be cautiously used. The active ingredients such as quick-lime, orpiment, etc., being either absorbed by the skin or likely to remove it along with the hair. They do not cause a permanent removal of the hair, but often leave deep marks. Says Dr. Perry in his excellent work, speaking of depilatories, "Once for all, I may state that the razor or the tweezers is to be preferred before any chemical depilatory in existence. If, however, any of my readers are resolved to disregard my advice in this matter, I must still be their friend, to the extent of showing them the compositions of the principal compounds in use and indicating my preference.

Perhaps the safest and best of these methods of procedure for the removal of superfluous hairs, is the following, —

The hairs should be perseveringly plucked up by the roots, and the skin washed twice a day with warm soft water, without soap; should be treated after ablution with the following lotion, commonly termed Milk of Roses: Beat 4 oz. of sweet almonds in a mortar, and add ½ an oz.

of white sugar during the process; reduce the whole to a paste by pounding; then add in small quantities at a time 8 oz. of rose-water. The emulsion thus formed should be strained through a fine cloth and the residue again pounded while the strained fluid should be bottled in a large stopped phial. To the pasty mass in the mortar add ½ oz. sugar and 8 oz. of rose-water, and strain again. This process must be repeated three times. To 32 oz. (1 quart) of fluid, add 20 dr. of the bichlorate of mercury dissolved in 2 oz. of alcohol, and shake the mixture for five minutes. The fluid should be applied with a towel immediately after washing, and the skin gently rubbed with a dry cloth till *perfectly* dry."

Hair Powders. — *Hair Powder* was formerly much used for the same purpose that dyes are used now, to hide gray hair. The basis was starch, and the perfume according to the choice. It is still in use to a certain extent in England, though it has mostly gone out of use, partly from the fact that it is considered old-fashioned, and partly on account of the tax of £1, 3s. 6d. per year for the privilege and liberty of dusting the hair.

Hair Powder. — Pure wheat starch, powdered.

Toilet Hair Powder. — Wheat starch 6 parts, orris-root powder 1 part; scent at pleasure.

Gray gives the following species of perfumery for scenting hair powder: "Powdered orris 1

lb., essence of bergamot 12 oz., oil of neroli 1 dr., musk 1 scruple."

Hair Powder is also perfumed with jasmine, roses, etc., by mixing the plain powder with the flowers for two or three days, and then sifting out the powder.

HAIR DYES.

The active ingredients of the different hair dyes vary more in form than in properties. Thus we have a pomade, applied with a brush and comb, composed of nitrate of silver, cream of tartar, ammoniac, and prepared lard; a paste is also used, made of nitrate of silver, proto-nitrate of mercury, and distilled water, thickened with starch; it is applied in the evening, the head being kept covered with a cap of gummed taffeta during the night, and in the morning the paste is washed off and the hair anointed. But the compounds most generally employed are in a liquid form, and are usually termed "instantaneous" liquid hair dyes. Some of them, however, not quite so prompt in action, are styled atmospheric dyes. The former usually consists of two liquids, the first an acidulated mordant or base (sometimes called a setting), and the other containing the silver which is invariably the basis of "instantaneous" dyes. Of this sort are the dyes known as Batchelor's, Christadoro's, Phalon's, Bogle's, Rothe's, Harri-

son's, and Perry's. The recipes for most of these are among the following, though out of regard to the proprietors, the names by which each is designated are not given. It will be observed there is a striking similarity between them. Hair dyes color the hair only as far as the roots and require to be applied as frequently as the growth of the hair shows both false and real color. The solution of silver stains the skin as well as the hair. The caustic earths, such as lime, etc., act as depilatories. The silver solutions are therefore most generally used, being carefully applied to the hair only. La Forest's cosmetic wash, the pyrogallic stain, etc., differ little from common ink, which is cheaper and equally effectual. The hair must always be washed and cleansed free from scurf before applying any dye.

INSTANTANEOUS LIQUID HAIR DYES.

No. 1. *First liquid.* — To 1 oz. gallic acid dissolved in 8 oz. alcohol, add ½ gallon soft water.

Second liquid. — To 1 oz. nitrate of silver dissolved in 1 oz. of concentrated aqua ammonia and 3 oz. of soft water, add 1 oz. gum-arabic and 4 oz. of soft water.

No. 2. *First liquid.* — To 1 oz. gallic acid dissolved in 8 oz. alcohol, add ½ gallon soft water.

Second liquid. — To 1 oz. of crystallized nitrate of silver, dissolved in 1 oz. of concentrated aqua

ammonia and 2 oz. soft water, add 2 oz. gum-arabic and 5 oz. soft water.

No. 3. *First liquid.* — To 1½ oz. gallic acid and ¼ oz. of tannin dissolved in 8 oz. of alcohol, add ½ gallon of soft water.

Second liquid. — To 1 oz. crystallized nitrate of silver, dissolved in 1 oz. concentrated aqua ammonia, add 1¼ oz. of gum-arabic and 8 oz. of soft water.

No. 4. *First liquid.* — To 1 oz. gallic acid, 1 oz. of tannin, dissolved in 10 oz. of alcohol, add 2 qts. of soft water.

Second liquid. — To 1 oz. of crystallized nitrate of silver, dissolved in 2 oz. of concentrated aqua ammonia, add 12 oz. of soft water and 1½ oz. of gum-arabic.

Third liquid. — 1 oz. of hydro-sulphate of potassa, dissolved in ½ gallon of soft water. This third liquid is intended to produce a deep black color should the others fail.

No. 5. *First liquid.* — To 2 oz. gallic acid, dissolved in 12 oz. alcohol, add 3 qts. of soft water.

Second liquid. — To 1 oz. of crystallized nitrate of silver, dissolved in 2 oz. concentrated aqua ammonia, add 1 oz. gum-arabic and 8 oz. of soft water.

No. 6. *First liquid.* — To 1 oz. gallic acid, dissolved in 8 oz. alcohol, add ½ gallon soft water.

Second liquid. — To 1 oz. crystallized nitrate

of silver, dissolved in 2 oz. of concentric aqua ammonia, add 9 oz. soft water.

No. 7. *One preparation.* — To 1 oz. crystallized nitrate of silver, dissolved in 2 oz. concentrated aqua ammonia, add 16 oz. soft water. This is not an instantaneous dye; but after exposure to the light and air, a dark color is produced upon the surface to which it is applied.

ATMOSPHERIC LIQUID HAIR DYES.

No. 1. — Nitrate of silver 11 dr., nitric acid 1 dr., distilled water 1 pt., sap green 3 dr., gum-arabic 1 dr.

No. 2. — Nitric acid 1 dr., nitrate of silver 10 dr., sap green 9 dr., mucilage 5 dr., distilled water 37½ fluid oz.

No. 3. — Silver 2 dr., iron filings 4 dr., nitric acid 1 oz., distilled water 8 oz.; digest and decant the clear solution; to be carefully applied with a close brush.

No. 4. — Hydrosulphuret of ammonia 1 oz., liquor of potash 3 dr., distilled water 1 oz; mix. Apply this with a tooth-brush for fifteen or twenty minutes, then brush the hair over with the following: Nitrate of silver 1 dr., distilled water 2 oz.; using a clean comb to separate the hair.

LEAD, SULPHUR, AND LIME POWDERS, AND LIQUIDS.

The following six are all well-known liquid hair dyes, the names of which are withheld for the reason elsewhere assigned in the case of other preparations, —

No. 1. — 1 dr. lac sulphur, ½ dr. sugar of lead, 4 oz. rose water; mix carefully; apply to the hair repeatedly till it assumes the required shade.

No. 2. — To 16 oz. rose water, diluted with an equal part of soft water, add ¼ oz. of sulphur, and ¼ oz. sugar of lead; let the compound stand five days before using.

No. 3. — To 8 oz. of 80 per cent. alcohol, add 2 oz. castor oil, 1 dr. sulphur, 1 dr. sugar of lead.

No. 4. — To 8 oz. vinegar, diluted with an equal part of soft water, add 2 dr. sulphur, 2 dr. sugar of lead.

No. 5. — To 16 oz. soft water, add 8 oz. alcohol, and ½ oz. spirits of turpentine, put ¼ oz. sulphur, and ¼ oz. sugar of lead.

No. 6. — To 1 pt. of diluted rose water put ¼ oz. sulphur, and ¼ oz. sugar of lead.

THE UNIQUE HAIR POWDER.

To 6 oz. lime reduced to a powder by wetting it with water, add 2 oz. litharge; when it be-

comes dry, sift it through a fine cloth. This is said to be the most effectual hair dye that has yet been discovered. But the application of it is not very agreeable, though simple enough. Put a quantity of it in a saucer, pour boiling water upon it, and mix it up with a knife like thick mustard; divide the hair into thin layers with a comb, and plaster the mixture thickly into the layers to the roots and over the hair. When it is completely covered lay over it a covering of damp blue or brown paper, then bind over it closely a handkerchief, put a nightcap over all and go to bed; in the morning brush out the powder, wash thoroughly with soap and warm water, then dry, curl, oil, etc. Hair thus managed, it is said, will be a beautiful and permanent black.

MISCELLANEOUS HAIR DYES.

No. 1. Dr. Hanman's. — Litharge ½ oz., quicklime 3½ oz., starch 2 oz.; mix in powder. For use, mix in warm water and rub on the hair to the roots; cover the head with oil-skin or wadding for covering for the night.

No. 2. Orfila's. — Take 3 parts of litharge and 2 of quick-lime, both in fine powder, and mix them carefully; when used, a portion of the powder is mixed with hot water or milk, and applied to the hair, the parts being afterwards enveloped in oil-skin or cabbage-leaf for four or five hours.

No. 3. SPENCER'S. — Sap green ½ dr., nitrate of silver 1 dr., hot water 1 oz.; dissolve; combed in the hair for use.

No. 4. CHEVALLIER'S. — Mix 5 dr. of fresh slacked lime with 1½ oz. of water, and strain through silk; put this "milk of lime" into a 4 oz. bottle; dissolve 5 dr. of acetate of lead in sufficient water, and add enough slacked lime to saturate the acetic acid (say, 1 dr. or a little more); let it settle, pour off the liquor, wash the precipitate with water, and add it to the milk of lime.

No. 5. WARREN'S. — Sifted lime 16 oz., white lead 2 oz., litharge in fine powder 1 oz.; mix well together and keep dry. To dye black, mix a little of the powder with water to the consistency of cream. To dye brown, use milk instead of water; apply with a small sponge to every hair.

No. 6. DELCROIX'S. — Acetate of lead 2 oz., prepared chalk 3 oz., quick-lime 4 oz.; used same as No. 1.

No. 7. CATTEL'S. — Nitrate of silver 11 dr., nitric acid 1 dr., sap green 3 dr., gum-arabic 1 dr., distilled water 1 pt.; mix.

No. 8. — Brush the hair with the following solution: Nitrate of silver 1 dr., distilled water 1 oz.; then with a weak solution of hydrosulphuret of ammonia, which at once blackens it.

No. 9. — Nitrate of silver and sulphate of iron, of each 1 dr., distilled water 1 pt.; mix.

No. 10. — Litharge 2 parts, slacked lime 1 part, chalk 2 parts; all finely powdered and accurately mixed. When required for use, mix the powder with warm water, and dip a brush in the mixture, and rub the hair well with it; after two hours let the hair be washed.

PYROGALLIC STAIN. — Distil coarsely powdered nutgalls in a retort, dissolve the solid acid which sublimes in a little hot water, add the solution to the acid liquid which passes over, separate the floating oil, shake the liquid with charcoal, filter, and add a little spirit.

This preparation can be obtained ready prepared at most any wholesale druggist's.

LA FOREST'S COSMETIC WASH FOR THE HAIR.

Red wine 1 lb., salt 1 dr., sulphate of iron 2 dr.; boil for a few minutes, and add common verdigris 1 dr.; leave it on the fire two minutes, withdraw it and add 2 dr. of powdered nutgalls; rub the hair with the liquid, in a few minutes dry it with a warm cloth, and afterwards wash with water.

POMATUMS OR COSMETIQUES IN STICKS FOR THE HAIR, ETC.

Black Pomatum in sticks for the eyebrows, whiskers, etc. — Prepared lard melted with ⅓ its weight of wax, in winter, and ¼ in summer, and colored with levigated ivory black, and strained through tammy or any material which will permit the fine particles of ivory black to pass through; stir it constantly, and when it begins to thicken pour it into paper moulds.

Brown and Chestnut Pomatums are prepared in the same way, but colored with umber, etc.

POMADE DE JEUNNESSE.

Pomatum mixed with bismuth is said to turn the hair black. — *Gray.*

SOAPS.

Toilet and Fancy-Scented Soaps. — These soaps consist of common commercial soap mixed with scents and colors at pleasure. As it is much more convenient and economical to use the common commercial soap already made, than to undertake to make it, it is only necessary to mention the means by which the soap, as it comes from the manufacturer's, is prepared for the toilet.

Scented Soaps in General. — Cut the best

white curd soap (or for some kinds palm soap) into thin shavings and place it in a copper vessel with sufficient soft water, and heat it very gradually and carefully (in a water bath if convenient) till the whole is uniformly liquid; let it cool to 135° F., or till you can bear your finger in it comfortably; then add the coloring matter and perfumeries. They, of course, can be colored any color, and perfumed at pleasure.

ALMOND SOAP. — To one hundred weight of the best hard white soap, melted as above, add 20 oz. of essential oil of bitter almonds. The true almond soap, of course, is made from the expressed oil of bitter almonds; but this is an article rarely, if ever, met with, and the article made from the above recipe answers the purpose equally well, — is, in fact, the only almond soap ever seen or used in this country.

SAVON AU BOUQUET. — Melt 60 lbs. of white curd soap as above, then add 8 oz. oil of bergamot, 1½ oz. each oil of cloves, sassafras, and thyme, ¾ oz. oil of neroli, and 14 oz. or q. s. of brown ochre.

ROSE SOAP. — Put in a copper vessel placed in boiling water (this constitutes what is termed a water bath) 20 lbs. of white soap, and 30 lbs. of olive oil soap, both in thin shavings, add 5 pints of soft water, or rose water; keep the heat below boiling till the soap is uniformly liquefied; then

add 12 oz. of finely sifted vermilion, or enough to produce the required tint; withdraw it from the fire, and when sufficiently cool, add 3½ oz. otto of roses, ½ oz. oil of cloves, ½ oz. oil of cinnamon, and 2½ oz. oil of bergamot. For a cheaper article, use less rose, or rose geranium oil instead of otto of rose, and leaving out the other essential oils.

WINDSOR SHAVING SOAP. — This can be made of lard. In France they use lard with a portion of olive or bleached palm oil. Dr. Pereira states that it is made with one part of olive oil to nine parts of tallow. But a great part of what is sold is only tallow soap, scented with oil of caraway and bergamot. The brown is colored with burnt sugar or umber.

GENUINE WINDSOR SOAP. — The following is the recipe of a firm in New York City, who manufactured and sold large quantities of "*Genuine Windsor Soap*": Take the best white soap, slice it thin as possible, melt carefully over a slow fire, scent well with oil of caraway; let it stand three or four days; cut into square pieces, and it is ready for market.

MUSK SOAP. — Melt 1 lb. of white soap in ½ pint of soft water; heat till a portion of the water passes off in steam; when partially cooled add essence of musk ½ dr., bergamot and ambergris each 20 drops.

HONEY SOAP. — White curd soap, 2 lbs. Cut into thin shavings and liquefy as directed above for scented soaps. Then add 4 oz. of honey and keep it melted till most of the water is evaporated. Then remove from the fire, and, when cool enough, add any essential oil.

FLOATING SOAPS. — These are made by liquefying, as described before, 30 lbs. of oil soap with about 5 pints of water and agitating the mixture by a suitable wooden apparatus turned by a handle till the froth rises to the top of the vessel. It is then poured into frames to cool. They are variously perfumed and colored.

TRANSPARENT SOAP. — Cut white soap into shavings and dry them with a gentle heat till they can be reduced to powder. Put 2 lbs. of this powder into a water bath with 5 or 6 pints of rectified spirit of wine, and heat it gently (taking care that the water does not quite boil) till the solution is complete, add the perfume and pour into moulds or frames. They must be kept some time in a dry place before they attain their full degree of transparency.

WASH BALLS — *Savonettes.* — These are made from various kinds of soap, usually with the addition of powdered starch or of rice flour, together with perfuming and coloring ingredients. They are formed into balls by taking a mass of the prepared soap in the left hand and a conical drinking-glass with rather thin edges in the right.

By turning the glass and ball of soap in every direction, the rounded form is soon given. When dry, the surface is scraped to render it more smooth and even.

LEMON WASH BALLS. — Cut 6 lbs. of soap into very small pieces. Melt it with a pint of water in which 6 lemons have been boiled. When melted withdraw the soap from the fire and add 3 lbs. powdered starch and a little essence of lemon. Knead the whole into a paste and form into balls of any desired size.

CAMPHOR WASH BALLS. — White soap 1 lb., spermaceti 1 oz., water q. s. Melt together and add 1 oz. of powdered camphor.

MRS. SYMOND'S SOAP PASTE *for the skin.* — Best soft soap (from olive oil and potash if possible) 16 oz., spermaceti 4 oz., best olive oil 1 oz., camphor ¼ oz., rectified spirit ¼ oz., soft water 1 pint, essence of lemon ½ oz.

PUMICE PASTE is the same as the above, with the addition of 8 oz. powdered pumice sifted through fine book-muslin.

POWDERED SOAP. — Any kind of hard soap may be pulverized if first cut into thin shavings and kept at a gentle heat till sufficiently dry. This process renders the soap more mild and agreeable to the skin.

CASTILE SOAP is made of olive oil and soda and is far more cleansing than other soaps. There are two kinds — the white and the marbled.

White Castile Soap when good is of a pale, grayish, white color, devoid of strong rancid odor or strong alkaline qualities, and entirely soluble in water or alcohol. When pure, it does not feel greasy nor grow moist, but, on the contrary becomes dry on exposure to the air. *Marbled Castile Soap* is harder, more alkaline in its composition than the other variety, and contains less water; it is stronger and more economical, but at the same time less pure — the black or red marbling being an oxide of iron, which being taken out, makes the white.

SAVON AU MIEL — *French Honey Soap.* — Take 4 oz. white soap, 4 oz. white honey, 1 oz. benzoin, ½ oz. storax; mix the whole together in a marble mortar, and when well incorporated melt the paste in a water bath, strain, pour into pans and divide into small cakes.

LADY DERBY'S SOAP. — Take 2 oz. of blanched bitter almonds, 10 dr. of tincture of benzoin, a pound of white soap, and a piece of camphor the size of an acorn; powder the almonds and camphor in a mortar, and, when they are completely mixed, add the benzoin. If there should be too much odor of benzoin, weaken the perfume by remelting the soap.

FRANGIPANNI SOAP. — White soap 7 lb., civet ¼ oz., neroli ½ oz., otto of sandal 1½ oz.; otto of rose 5 drops. Melt the soap as has previously been di-

rected and when sufficiently cool add the perfumery. This is a very rich and fragrant soap.

SHAVING SOAP. — White bar soap 4½ lbs., rain or soft water 1 quart, beef's gall 1 gill, spirits turpentine 1 gill. Cut the soap thin and boil slowly and carefully 5 minutes. Stir while boiling and color with ½ oz. of vermilion. Scent with caraway and bergamot and a very little oil of cloves and cinamon. Fifty cents' worth of material makes five dollars' worth of soap.

SHAVING SOAP, No. 2. — Mix 1½ lbs. of soap, carbonate of potash 2 oz., spirit of wine 1 quart, digest until dissolved. Filter and scent with bergamot or lemon.

SHAVING POWDER. — Melt together in a water bath 1 lb. of white soap with 1 oz. of powdered spermaceti and ¼ oz. of chlorate of potash dissolved in a little soft water. Pour the liquefied soap into a shallow mould, and when solidified shave fine and powder, as heretofore directed.

SHAVING PASTE, No. 1.—Melt together 1 dr. each of spermaceti, white wax, and almond oil. Beat it up with 2 oz. of the best white soap and a little lavender or cologne water.

SHAVING PASTE, No. 2. — Naples soap beaten up with sufficient powdered soap to form a stiff paste. Scent at pleasure.

SHAVING PASTE, No. 3. — White soft soap 4 oz., powdered castile soap 1 oz., almond oil or olive oil 1 oz.; perfume.

SHAVING LIQUID, No. 1. — *Essence of Soap.* — White soft soap 3 oz., proof spirit 8 oz., soft water 4 oz., carbonate of potash 1 dr., essence of lemon q. s. Dissolve the soap without heat and add the potash and essence.

SHAVING LIQUID, No. 2. — *Italian Essence of Soap.* — White soap 10 parts, rectified spirit 34 parts, orange-flower water 34 parts. Digest with a gentle heat and filter.

SHAVING LIQUID, No. 3. — Naples soap or white soft soap 16 oz., olive oil 1½ oz., gum benzoin 1 dr., rectified spirit 24 oz. Digest. Rub a few drops on the beard; follow by warm water.

SHAVING LIQUID, No. 4. — Soft soap 1 lb., rectified spirit 25 oz.; mix. Scent at pleasure.

MILK OF ROSES. — Mix 1 oz. almond oil with 10 drops of oil of tartar (carbonate of potash 10 grains), and add 1 pint of rose water.

SHAVING CREAM, No. 1. — White curd soap ½ lb. spermaceti and almond oil, each 1 oz. Beat with the whites of 2 eggs, add liquor potassa 2 oz., and bitter almond oil to scent.

SHAVING CREAM, No. 2. — White wax, spermaceti and almond oil each 2 dr.; melt; add white soap 4 oz., and beat together with eau de cologne.

SHAVING CREAM, No. 3. — Soap 2 oz.; macerate in rectified spirit enough to soften it to a paste; add liquor potassæ ½ oz., bitter almond oil 5 drops, otto of roses 3 drops, oil of lavender 2 drops, eau de cologne ½ oz., mix.

SHAVING CREAM, No. 4. — *Almond Cream.* — The preparation sold under this title is a potash soft soap of lard. It has a beautiful pearly appearance, and has met with extensive demand as a shaving compound. It is made thus: Clarified lard 7 lbs., potash of lye (containing 26 per cent. of caustic potash) $3\frac{3}{4}$ lbs., rectified spirit 3 oz., otto of almonds 2 drams. Melt the lard in a porcelain vessel by a soft water bath, that is, place the porcelain vessel in boiling salt water, then run in the lye very slowly, stirring the whole time. When about half the lye has been stirred in, it begins to curdle. It will soon become so firm that it cannot be stirred. The cream is then finished, but is not pearly. It will, however, assume that appearance by long trituration in a mortar, gradually adding the alcohol, in which has been dissolved the perfume.

BALM OF ONE THOUSAND FLOWERS. — Alcohol 1 pint, best quality of white soap 4 oz., shave the soap fine. Let it stand in a close vessel with the alcohol till it is all dissolved. Then add $\frac{1}{2}$ dram each of citronella, neroli, and rosemary. A fortune has been made with this article. It was formerly put up in 3 oz. bottles and sold at retail for fifty cents each. The actual cost of bottles, labels and everything was between seven and eight cents. It was highly recommended for shaving, as a dressing for the hair, as a skin cosmetic, and as a cleanser and beautifier of the teeth.

MISCELLANEOUS SOAPS. — *Almond Oil Soap* is formed of caustic soda and almond oil, and is directed to be kept two months exposed to the air before using.

Palm Soap is prepared from soda and palm oil, to which tallow is added to increase its firmness. If it be wanted white, the palm oil must be bleached by sulphuric acid or by chlorine, or by exposure to the sun.

White Soft Soap is made of olive oil and potash and is the kind mostly used in medicine.

Borax Soap. — 1 lb. borax, 1 lb. sal soda, 8 lbs. common bar soap, 8 quarts of soft water. Powder the borax and soda, cut the soap in thin slices, add all together and boil very gradually until it is all dissolved, then remove from the fire and stir occasionally until cold. This makes a splendid soap for most any use. It is very cleansing, not only for the skin but for clothes or house paint. As a family soap for general use it has no superior. It does not injure the hands and is very economical.

FAMILY SOAP. — Pour 4 gallons of boiling water over 6 lbs. of washing soda and 3 lbs. of unslacked lime. Stir the mixture well and let it stand until perfectly clear. It is better to set over night, as it takes some time to settle. Drain the water off. Cut up 6 lbs. of tallow and boil it 2 hours in the liquid, stirring it most of the time. Add a pailful of water to the grounds of lime. It

will be needed to fill up with when it grows thick or is likely to boil over. The thickness of the soap can be ascertained by putting some of it on a plate and cooling it. Stir in a handful of salt before removing from the fire. Have a tub ready soaked to prevent its sticking, pour in and let it stand till solid. Keep where it will not freeze.

WASHING FLUID. — Boil 10 lbs. of soda ash in 30 gallons of soft water in an iron kettle until entirely dissolved. Slack 10 lbs of quick-lime and when thoroughly slacked add water to the consistency of cream. Mix thoroughly together in a pine soap barrel or iron kettle. For use mix one half pint of the fluid in two pails of warm water. Let the clothes soak in this over night. Use a little soap on the collars and wristbands of shirts when they are put in soak. In the morning boil and rinse the clothes and they are ready to dry.

INSTANTANEOUS GREASE EXTRACTOR. — To 10 gallons of soft water add 12 lbs. of white or light yellow bar soap, 3 lbs. washing soda, 4 oz. borax 2½ oz., sal tartar 2½ oz., salt petre 2 oz., carbonate of ammonia. Cut the soap in fine shavings into the water, boil it very gradually over the fire till the soap is all dissolved. Then add the rest of the ingredients and keep hot (but not boiling) till all are dissolved. Withdraw from the fire and when sufficiently cooled to bear your finger in it, add ½ oz. oil of sassafras. Should be made in a tin boiler. The value of this article

cannot be over estimated. It effectually removes grease, oil, paint, or varnish from any kind of cloth in a manner far superior to benzine or other injurious compounds. It is very cleansing and softening to the skin; will in nine cases out of ten heal chapped hands. It cleans paint, without rubbing, instantly. Fortunes have been made out of this article. The recipe has been sold at enormous prices, and the public have bought the compound under the names of "*Magic Paint Cleaner*," "*Magic Cleansing Cream*," "*Magic Grease Extractor*," "*Instantaneous Grease Extractor*," etc., etc. It must be poured into boxes, cans, or pans while liquid, as it cools solid.

PERFUMERY.

The perfumeries for the handkerchiefs, as found in the shops of Paris and London, are either simple or compound. The former are called extracts, extraits, esprits, or essences, and the latter bouquets, nosegays, or millefleurs, which are mixtures of the extracts so compounded in quantity that no one odor or flower can be discovered as predominating over another. Perfumes are procured by the processes of maceration, absorption, and distillation.

In making pomade, a certain quantity of purified mutton or deer suet is put into a clean metal or porcelain pan. This being melted by a steam heat, the kind of flowers required for the odor wanted is carefully picked and put into the liquid fat, and allowed to remain from twelve to forty-eight hours. The fat has a peculiar affinity or attraction for the oil of flowers, and thus, as it were, draws it out of them and becomes itself by their aid highly perfumed. The fat is strained from the spent flowers, and fresh are added four or five times over, till the pomade is of the required strength.

For perfumed oils, the same operation is followed, but in lieu of suet, fine olive oil or oil of ben derived from the ben nuts of Levant, is used and the same results are obtained. The odors of some flowers are so delicate and volatile that heat would spoil them; the process of absorption or *enfleurage* is, therefore, conducted cold, thus: Square frames, about three inches deep, with a glass bottom, say two feet wide and three feet long, are procured. Over the glass a layer of fat is spread about half an inch thick, with a kind of plaster knife. Into this the flower buds are stuck, cut downwards, and ranged completely over it and there left from twelve to seventy-two hours.

Almond perfume is obtained from the bitter almonds, and exists in the skin or pellicle that covers the seed after it is shelled.

The essential oil of almonds enters into combination with soap, cold cream, and many other materials prepared by the perfumer.

A beautiful imitation of essence of white lilac may be compounded thus: 1 pint spirituous extract from tuberose pomade, ¼ pint of spirituous extract of orange-flower pomade, 3 drops of otto of almonds, ½ oz. extract of civet. The civet is only used to give permanence to the perfume of the handkerchief.

Civet is an odorous substance obtained from two animals, namely, the civetta, or civet cat, of Africa, and the Zibetha, which inhabits the East

Indies. It is secreted into a cavity which opens between the anus and external genitals, and is collected from animals confined for that purpose. It is semi-liquid, unctuous, yellowish, becoming brown and thicker by exposure to the air, of a very strong, peculiar odor, similar to that of musk, though less agreeable and less diffusible, and of a bitterish, sub-acrid, disagreeable, fatty taste. When heated it becomes quite fluid, and at a higher temperature it takes fire and burns with a clear white flame, leaving little residuum. It was formerly used in medicine, but is now used exclusively for perfumery.

BENZOIN, *also called* BENJAMIN.— This is a very useful substance to perfumers. It exudes styrax benzoin by wounding the tree, and, drying, it becomes a hard resin. It is principally imported from Borneo, Java, Sumatra, and Siam.

BAY. — *Oil of sweet bay, also termed essential oil of laurel berries*, is a very fragrant substance, procured by distillation from the berries of the bay laurel.

BERGAMOT. — This most useful perfume is procured from the *Citrus Bergamia* by expression from the peel of the fruit. Mixed with rectified spirit in the proportions of about 8 oz. of bergamot to a gallon, it forms what is called "Extract of Bergamot," and in this state is used for the handkerchief.

GERANIUM. — *Rose-leaf geranium.*— The leaves

of this plant yield by distillation a very agreeable rose-smelling oil, so much resembling the real otto of rose that it is used very extensively for adulteration of that valuable oil, and is grown very largely for that express purpose. When dissolved in rectified spirit, in the proportion of about 8 oz. to the gallon, it forms the "Extract of rose-leaf geranium" of the shops.

HELIOTROPE. — Either by maceration, or enfleurage, with clarified fat, we may obtain this fine odor from the flower of the heliotrope. For a small trial, which can be managed by any person having the run of a garden, we will say procure an ordinary glue-pot, now in common use, which melts the material by the boiling of water. At the season when the flowers are in bloom, obtain ½ lb. of fine mutton suet; melt the suet and strain it through a coarse hair sieve; allow the liquefied fat, as it falls from the sieve, to drop into cold spring water. This operation granulates and washes the blood and membrane from it. In order to start with a perfectly inodorous grease, the melting and granulation process may be repeated three or four times. Finally, remelt the fat and cast it into a pan to free it from adhering water. Now put the clarified suet into the macerating pot, and place it in such a position near the fire of the green-house, or elsewhere, that will keep it warm enough to be liquid; into the fat throw as many flowers as you can, and there let them remain for

twenty-four hours; at this time strain the fat from the spent flowers and add fresh ones; repeat this operation for a week. We suppose at the last straining the fat will have become very highly perfumed, and, when cold, may justly be termed "*Pomade a la Heliotrope.*"

The cold pomade, being chopped up like suet for a pudding, is now to be put into a wide-mouthed bottle, covered with spirit as highly rectified as can be obtained, and left to digest for a week or more; the spirit then strained off will be highly perfumed; in reality it will be "*Extract of Heliotrope*," — a delightful perfume for the handkerchief. The philosophy of this operation is simple enough. The fat body has a strong affinity or attraction for the odorous body or essential oil of the flowers, and it therefore absorbs it by contact, and becomes itself perfumed. In the second operation the spirit has a much greater attraction for the fragrant principles than the fatty matter. The former, therefore, becomes perfumed at the expense of the latter. The same experiment may be repeated with the almond oil substituted for the fat. The experiment here hinted at may be varied with any flowers whatever; indeed, by having the macerating bath layer that was mentioned above, an excellent millefleur pomade and essence might be produced from every conservatory.

PATCHOULY is an herb that grows extensively

in India and China. It somewhat resembles our garden sage in its growth and form. The odor is due to an otto contained in the leaves and stems, and is readily procured by distillation. It is the most powerful of any derived from the botanic kingdom; hence, if mixed in the proportion of measure for measure, it completely covers the smell of all other bodies.

Extract of Patchouly. — Rectified spirits 1 gallon, otto of patchouly 1¼ oz., otto of rose ¼ oz. The characteristic smell of the Chinese or Indian ink is due to some admixture of this herb. The origin of the use of patchouly as a perfume in Europe is curious. A few years ago real Indian shawls bore an extravagant price, and purchasers could always distinguish them by their odor,— in fact they were perfumed with patchouly. The French manufacturers had for some time successfully imitated the Indian fabric, but could not impart the odor. At length they discovered the secret, and began to import the plant to perfume articles of their make, and thus palm off homespun shawls as real Indian. From this origin the perfumers have brought it into general use.

Musk. — This extraordinary substance, like civet, is an animal secretion. It is obtained from an animal called the musk deer, which inhabits the vast mountainous regions of Central Asia, extending from India to Siberia, and from the country of Turcomans to China. The musk is

contained in an oval, hairy, projecting sac, found only in the male, situated between the umbilicus and the prepuce, from two to three inches long, and from one to two broad. It is lined internally by a smooth membrane, which is thrown into a number of irregular folds, forming incomplete partitions. In the vigorous adult animal the sac sometimes contains six drams of musk, but in the old seldom more than two drams, and in the young none at all.

It is principally imported from Canton, though portions are occasionally brought hither from Europe. Musk is in grains or lumps concreted together, soft and unctuous to the touch, and of a reddish brown, resembling that of dried blood. The odor is strong, penetrating, and so powerfully diffusive that one part of musk communicates its smell to more than three thousand parts of inodorous powder. Musk is inflammable, burning with a white flame, and leaving a light, spongy charcoal.

Extract of Musk is made by dissolving the grain in alcohol. The extract thus made is of a dark reddish brown. From twenty-five to sixty per cent. of the grain musk is soluble in alcohol.

Rose. — Pure otto of roses, from its cloying sweetness, has not many admirers. When diluted, however, there is nothing to equal it as an odor; especially if mixed in soap, to form rose soap, or in pure spirit, to form the *Esprit de Rose*. There

are four modifications of essences of rose for the handkerchief, which are the *ne plus ultra* of the perfumer's art: They are esprit de rose, triple essence of white roses, essence of tea rose, and essence of moss rose.

The following are the recipes: —

Esprit de Rose, Triple. — Rectified alcohol 1 gallon, otto of rose 3 oz.; mix at a summer heat. In the course of fifteen minutes the otto is wholly dissolved; it is then ready for bottling. In the winter season beautiful crystals of the otto — if it is good — appear disseminated through the esprit.

Essence of Moss Rose. — Spirituous extract from French rose pomatum 1 qt., esprit de rose, triple, 1 pint, extract fleur de orange pomatum 1 pint, extract of ambergris ½ pint, extract of musk 4 oz.; the ingredients to remain together for a fortnight; then filter, if requisite, and it is ready for sale.

Essence of White Rose. — Esprit de rose, from pomatum, 1 qt., esprit de rose, triple, 1 qt., esprit de rose, violet, 1 qt., extract of jasmine 1 pint, extract of patchouly ½ pint.

Essence of Tea Rose. — Esprit de rose pomade 1 pint, esprit de rose, triple, 1 pint, extract of rose geranium 1 pint, extract of sandal wood ½ pint, extract of neroli ¼ pint, extract of orris ¼ pint.

VERBENA, *or* VERVAINE. — The scented species of this plant, the lemon verbena, gives one of the finest perfumes with which we are acquainted.

It is well known by yielding a delightful fragrance by merely drawing the hand over the plant. Some of the little vessels or sacs containing the otto must be crushed in this act, as there is little or no odor by merely smelling the plant. The odor which can be extracted from the leaves by distillation with water, on account of its high price, is scarcely, if ever, used by the manufacturing perfumer. But it is most successfully imitated, by mixing the otto of lemon grass with rectified spirit or alcohol, the odor of which resembles the former to a nicety.

The following is a good form for making the *Extract of Verbena:* 1 pint of alcohol, 3 dr. otto of lemon grass, 2 oz. otto of lemon peel, ½ oz. otto of orange peel; let stand together a few hours and it is fit for use.

WINTERGREEN. — A perfuming otto or oil can be procured by distilling the leaves of this plant. It is principally consumed in perfuming soap. Upon the strength of the name of this odorous plant a very nice handkerchief perfumery is made.

ICELAND WINTERGREEN. — 1 pint esprit de rose, ¼ pint essence of lavender, ½ pint extract of neroli, ¼ pint extract of vanilla, ¼ pint extract of vitivert, ½ pint essence of cassia, ¼ pint extract of ambergris.

CITRON. — On distilling the flowers of the *citrus medica* a very fragrant oil is procured, called

cedrat, and is principally consumed by the manufacturers of eau de cologne.

CITRONELLA. — Under this name there is an oil in the market, chiefly derived from Ceylon and the East Indies. Being cheap, it is extensively used for perfuming soap and various preparations for the hair. What is now extensively sold as honey soap is refined yellow soap slightly perfumed with this oil.

CLOVES.— Every part of the clove plant abounds with aromatic oil, but it is most fragrant and plentiful in the unexpanded flower-bud, which are cloves of commerce. The plant is a native of the Moluccas and other islands in the China Sea. The oil may be obtained by the expression of the fresh flower-buds, but the usual method of producing it is by distillation. Few essential oils have a more extensive use in perfumery; it combines well with grease, soap and spirits, and forms a leading feature in some of the most popular handkerchief essences.

AMBERGRIS. — This substance, which is found floating on the sea, or thrown by the waves upon the shores of various countries, particularly in the southern hemisphere, is now generally believed to be produced in the intestines of the spermaceti whale, and, perhaps, in those of some other fish. It is in roundish pieces, usually small, though pieces have sometimes been found weighing fifty, one hundred, and even two

hundred pounds. They are of various colors, usually gray, with brownish, yellow and white streaks, often dark-brown or blackish on the external surface. They are opaque, lighter than water, and of a consistency like that of wax.

Ambergris has a peculiar, agreeable odor, and is extensively used in the manufacture of perfumery. It is insoluble in water, but, with the aid of a gentle heat, it is readily dissolved in alcohol, ether, and the volatile and fixed oils.

LAVENDER. — The common lavender is a small shrub, usually not rising more than two or three feet. It is a native of Southern Europe and covers vast tracts of dry and barren land in Spain, Italy, and the south of France. It is cultivated abundantly in our gardens, and in this country flowers in August. Lavender flowers have a strong, fragrant odor, and an aromatic, warm, and bitterish taste. They retain their fragrance long after drying, and are therefore extensively used in the manufacture of sachet powders, scent bags, etc. Alcohol extracts their virtues, and an essential oil, upon which their odor depends, rises upon the surface with that liquid in distillation. The oil is obtained separate by distilling the flowers with water. Two drams have been obtained from 1 lb. of flowers.

OIL OF CINNAMON. — Oil of cinamon of Ceylon is prepared in that island from the inferior kinds of cinnamon which are of insufficient value to pay

the export duty. It is prepared as follows: The bark, after being coarsely powdered, is macerated for two days in sea-water and then submitted to distillation. A light and a heavy oil come over with the water. The former swims on the surface and the latter sinks to the bottom. Eighty pounds of the bark freshly prepared yield about 2½ oz. of the lighter oil, and 5 or 6 oz. of the heavier. *Oil of Cassia*, which is generally used instead of oil of cinnamon, on account of its being much cheaper, is imported from Canton and Singapore, and is therefore often called *Chinese Oil of Cinnamon*. Used as a perfume in compound odors.

Oil of Lemons. — The exterior rind of lemons abounds in an essential oil, which, as it is contained in distinct cellules, may be separated by simple expression. The rind is first grated from the fruit, and then submitted to pressure in a bag of fine cloth. The oil thus obtained is allowed to stand till it becomes clear, when it is decanted and preserved in stopped bottles. By a similar process the *Oil of Cedrat* is procured from the citron. These oils are also obtained by distillation, but they have less the flavor of the fruit, and that obtained by expression is generally preferred. It is necessary that these oils should be kept from the air and in a cool place, as they are liable to become rancid and assume an odor of spirits of turpentine. They are imported from Italy, Portugal, Spain, and the south of France. This oil

enters largely into the composition of mixed odors, very few being made without having one or the other in greater or less quantities.

Oil of Rosemary. — The fresh leaves of this plant yield about one per cent. of oil. The oil is colorless, with an odor similar to that of the plant, though less agreeable. It is used extensively in perfumery in mixing different odors. When fresh and sweet, it makes an agreeable addition to the flavor; but it is very apt to change and assume a turpentine odor, and, if used in this manner, it will be found almost impossible to obliterate or drown the turpentine scent, no matter how many additions of other and stronger oils may be added.

Orange-Flower Water is made in Italy and France, the flowers of the bitter orange being preferred as yielding the most fragrant product. It is nearly colorless, though usually of a pale yellowish tint. It is used exclusively as a perfume.

Neroli is an oil obtained from orange flowers by distillation. It is mostly made in France, and is extensively used by perfumers, being an important ingredient in all first-class cologne waters. An oil is also obtained from small, unripe oranges, when about the size of a cherry, known as the *Petit Grain*, and employed for similar purposes with that of neroli and the orange-flower water. Orange peel has a grateful, aromatic

odor and a warm, bitter taste, which depends upon the essential oil contained in its vesicles. The oil is obtained by expression and by distillation. It is imported into the United States in tinned copper cans. It has properties resembling the oil of lemons, but spoils more rapidly on exposure to the air, acquiring a turpentine odor.

THYME. — A small, well-known under-shrub, native in the south of Europe, and with us cultivated in gardens. The herbaceous portion, which should be gathered when the plant is in flower, has a peculiar, strong, aromatic, agreeable smell, which is not lost by drying, and a pungent, aromatic, camphorous taste. The oil, which is its active constituent, is obtained from it by distillation. Oil of thyme is, when fresh, of a pale yellow or greenish color, but as found in the shops is often brown. It is commonly sold under the name of origanum.

TONKA BEAN, *or* TONQUIN BEAN. — The seed of a large tree growing in Guiana. The fruit is an oblong ovate pod, enclosing a single seed, from an inch to an inch and a half long, usually somewhat compressed, with a dark-brown, wrinkled, shining, thin and brittle skin, and a light-brown, oily kernel. The bean has a strong, agreeable, aromatic odor, and a bitterish, aromatic taste. Its extract is obtained by soaking the bean in alcohol for ten or twelve days. It is used in perfumery and also to adulterate the extract of

vanilla. It is also used to flavor snuff, by either being mixed with it in a state of powder, or put entire into the snuff-box.

VANILLA. — This is a climbing-plant growing in the West Indies, Mexico, and South America. It is said, also, to be cultivated in the Isle of France and Bourbon. The pods are collected before they are quite ripe, dried in the shade, covered over with a coat of fixed oil, and then tied in bundles, surrounded with sheet lead or enclosed in small metallic boxes and sent to market. Several varieties of vanilla exist in commerce. The most valuable, called *ley* by the Spaniards, consists of cylindrical, somewhat flattened pods six or eight inches long, and three or four lines thick, nearly straight, narrowing towards the extremities, bent at the base, shining and dark-brown externally, soft and flexible, and containing within their tough shell a soft, black pulp, in which numerous minute, black, glossy seeds are embedded. It has a peculiar, strong, agreeable odor, and a warm, aromatic, sweetish taste. Its extract is obtained by macerating in alcohol from fifteen to twenty days.

SANDAL WOOD. — There are three kinds of wood, known as *santalum* or *saunders*, viz., *santalum rubum* or *red saunders*, *santulum album* or *white saunders*, growing in the East Indies, South Pacific Islands, and South America, and *santalum citrinum* or *yellow saunders*, formerly supposed to be

the inside wood of the tree of which the outer constituted the white saunders, but now stated to be a different tree, growing in the Sandwich Islands, the Fegee Islands, on the coast of Malabar, etc. It is the latter which supplies the sandal wood so highly valued by the Chinese. Both kinds have a very agreeable aromatic odor. The Chinese employ the yellow saunders chiefly as a perfume, burning it in their temples, in their sick chambers, etc., and obtain from it a volatile oil, by distillation, which they mix with oil of roses. Sandal wood is used by perfumers in mixed odors and toilet perfumery extracts.

DISTILLED WATERS. — The simple distilled waters (without spirit) used in perfumery are chiefly those of rose, elder, orange flower, and cinnamon. The points requisite to be attended to are that the flowers be fresh gathered after the sun has risen and the dew exhaled, and that sufficient water be used to prevent the flowers being burned, but not much more than is sufficient for this purpose. The quantities usually directed are *Roses*, 15 lbs.; water 40 lbs.; distil 15 lbs. for single, and the same with 15 lbs. of fresh roses for double rose water. *Orange flowers* 12 lbs.; water 36 lbs.; distil 24 lbs. for double orange water; this with an equal part of distilled water forms the single orange-flower water. The flowers should not be put into the still till the water nearly boils.

Elder-Flower Water, *Acacia-Flower Water* and

Bean-Flower Water are prepared in the same manner as rose water.

Cinnamon Water. — A gallon should be distilled from 20 oz. fine cinnamon bruised and 2 gallons of water.

Strawberry Water. — Bruised strawberries 4 lbs.; water 1 gallon; macerate for 12 hours and distil 6 pints. Perfumed waters can also be prepared without distilling, by diffusing the essential oils through water after mixing them with chalk or magnesia, or dissolving them in spirit. Thus otto of roses 8 drops cut with 8 oz. alcohol, and mixed with 1½ pints of distilled water, makes a very fair article of rose water, but has not the rich flavor as that distilled direct from the flowers.

Musk Water, *Violet Water*, *Jasmine Water*, and some others are made by mixing the spirituous essences with distilled or pure soft water. The usual portion is 2 dr. to a pint.

SPIRITUOUS WATERS. — The spirit employed in perfumery should be selected with great care. It should be perfectly free from grain oil and other impurities. It should be sixty over proof unless otherwise directed.

SIMPLE SPIRIT OF LAVENDER. — Lavender flower free from stalks 2 lbs., rectified spirit 8 pints, water 16 pints, distil 8 pints.

ODORIFEROUS LAVENDER WATER. — Rectified spirit 1 gallon, essential oil of lavender 20 oz., oil of bergamot 5 oz., essence of ambergris ½ oz.

Sometimes 4 oz. of orris root are digested with the above.

No. 2. — Oil of lavender, oil of bergamot, of each 3 drams, otto roses, oil of cloves, of each 6 drops, musk 2 grains, true oil of rosemary 1 dr., honey 1 oz., benzoic acid 2 scruples, rectified spirit 1 pint, distilled water 3 oz.

No. 3. — Oil of lavender 2 oz., essence of ambergris 1 oz., eau de cologne 1 pint, rectified spirit 1 quart.

No. 4. — Oil of lavender 3 dr., oil of bergamot 20 drops, neroli 6 drops, essence of cedrat 10 drops, essence of musk 20 drops, rectified spirit 1½ pints.

No. 5. — Essence of bergamot 40 minims, essence of lemon 45 minims, oil of rosemary 6 minims, oil of oranges 22 minims, oil of neroli 12 minims, rectified spirit 6 oz., oil of lavender ½ oz.

No. 6. — Oil of lavender 4 drams, essence of bergamot, essence of lemon or cedrat, and otto of roses, of each 20 minims, essence of ambergris 1 dr., rectified spirit 3 pints, orange-flower water 4 oz., rose water 12 oz., burnt alum 20 gr.; shake frequently and let it stand six days before filtering.

No. 7, *Eau de Lavender au Millefleur.* — Oil of lavender 4 dr., essence of bergamot, essence lemon, otto of rose, of each 12 drops, essence of millefleur 3 dr., essence of ambergris 1 dr., rectified spirit 1½ pint.

Note. — The oil of lavender in the above

should be the finest English oil. That which first comes over is said to be the most fragrant. It should be kept for twelve months before using, either alone or mixed with an equal quantity of alcohol. Some makers prefer a mixture of old and new oil. The lavender water improves by age.

COMPOUND ODORS, OR BOUQUETS.

These are used for the purpose of fixing the more volatile odors to the handkerchief.

ESSENCE OF RONDELETIA. — Alcohol 1 gal., otto or oil of lavender 2 oz., oil of cloves 1 oz., oil of roses 3 dr., oil of bergamot 1 oz., 1 gill of extract of musk, 1 gill of extract of vanilla, and 1 gill of extract of ambergris. The mixture must be made a month before it is fit for use.

BOUQUET DE CAROLINE. — Extract of rose from pomatum 1 pint, extract of violet from pomatum 1 pint, extract of orris ½ pint, extract of ambergris ½ pint, oil of bergamot ¼ oz., oil of cedrat ¼ oz.

THE COURT NOSEGAY. — Extract of rose 1 pint, extract of violet 1 pint, extract of jasmine 1 pint, spirit of rose, triple, 1 pint, extract of musk 1 oz., extract of ambergris 1 oz., oil of lemon ½ oz., oil of bergamot ½ oz., oil of neroli 1 dr.

BOUQUET DE FLORA. — Esprit de rose 1 pint, esprit de violet 1 pint, extract of benzoin 1½ oz.,

bergamot 2 oz., oil of lemon ½ oz., oil of orange ½ oz.

ESSENTIA ODORIFERA. — 10 gr. of musk grain, civet 5 gr., Peruvian balsam 12 gr., oil of cloves 4 drops, oil of rhodium 2 drops, subcarbonate of potash ½ dr., rectified spirit 2 oz. Digest them together in a close vessel with a heat equal to that of the sun in summer for several days, and afterwards pour off the essence for use. This is an exquisite perfume, and a single drop gives a fine flavor to many ounces of other liquors.

LA GRANDE DUCHESSE. — Otto of rose 3 dr., oil of verbena 1 oz., extract of musk ½ oz., oil jasmine 3 dr. Mix and let stand three days before using.

EAU DE CHYPRE. — This is an old-fashioned French perfume, very popular in the time of Napoleon I., and supposed to be named after the island of Cyprus. The article sold is made thus: Extract of musk 1 pint, extract of ambergris ½ pint, extract of vanilla ½ pint, extract of Tonquin bean ½ pint, extract of orris ½ pint, esprit de rose, triple, 2 pints. The mixture thus formed is one of the most lasting odors that can be made.

EMPRESS EUGENIE'S NOSEGAY. — Extract of musk 1 gill, extract of vanilla 1 gill, extract of Tonquin bean 1 gill, extract neroli 1 gill, extract of geranium ½ pint, extract of rose, triple, ½ pint, extract of sandal wood ½ pint.

THE GUARDS' BOUQUET. — Esprit de rose 2

pints, esprit de neroli ½ pint, extract vanilla 2 oz., extract of orris 2 oz., extract of musk ¼ pint, oil of cloves ½ dr.

FLEUR DE ITALIE. — Esprit de rose 1 pint, esprit de jasmine 1 pint, esprit de violet 1 pint, extract of cassia ½ pint, extract of musk 2 oz., extract of ambergris 2 oz.

JOCKEY CLUB BOUQUET, *French.* — Esprit de rose 1 pint, esprit de tuberose 1 pint, esprit de cassia ½ pint, esprit de jasmine ¼ pint, extract de civet 3 oz.

JOCKEY CLUB, *English.* — Extract of orris 2 pints, esprit de rose, triple, 1 pint, esprit de rose 1 pint, extract de cassia ½ pint, extract of ambergris ½ pint, oil of bergamot ½ oz., esprit de jasmine ½ pint.

JOCKEY CLUB, *American.* — Oil of jasmine 3 oz., oil of verbena ½ dr., oil of rose geranium ½ oz., oil of cassia 1 dr., alcohol 1 pint.

HUNGARY WATER. — Rectified alcohol 1 gallon, otto of English rosemary 2 oz., oil of lemon 1 oz., oil of melisse, 1 oz., oil of neroli 1 oz., esprit de rose 1 pint, extract of musk 2 dr.

EXTRACT OF VERBENA. — 1 pint rectified spirit, 3 dr. oil of lemon grass, 2 oz. oil of lemon peel, ½ oz. oil of orange peel, 1 dr. extract of heliotrope.

EXTRACT OF VERVEINE. — 1 pint of rectified spirit, 1 oz. of oil of orange peel, 2 oz. oil of lemon peel, 1 dr. oil of citron or cedrat, 2½ dr. oil of lemon grass, 7 oz. extract de fleur de orange, 7

oz. extract de fleur tuberose, ½ pint esprit de rose.

IMITATION HONEYSUCKLE. — Extract of rose 1 pint, extract violet 1 pint, extract tuberose 1 pint, extract vanilla 1 gill, extract tolu 1 gill, oil neroli 10 drops, oil almonds 5 drops.

IMITATION ESSENCE OF MYRTLE. — Extract of vanilla ½ pint, extract of rose 1 pint.

IMITATION ESSENCE OF VIOLETS. — Spirituous extract of cassia 1 pint, esprit de rose ½ pint, tincture of orris ½ pint, spirituous extract of tuberose ½ pint, oil of bitter almonds 3 drops.

IMITATION OF LILY OF THE VALLEY. — Extract of tuberose ½ pint, extract of jasmine 1 oz., extract of fleur de orange 2 oz., extract of vanilla 3 oz., extract of cassia 1 gill, extract of rose 1 gill, oil of bitter almonds 3 drops. Keep this mixture together for a month, and then bottle for sale. It is a perfume very much admired.

IMITATION OF ESSENCE OF MAGNOLIA. — Spirituous extract orange flower 1 pint, spirituous extract of rose 2 pints, extract of tuberose ½ pint, spirituous extract of violet ½ pint, essential oil of citron 3 dr., oil of almonds 10 drops.

EXTRACT OF AMBER. — Esprit de rose, triple, ½ pint, extract of ambergris 1 pint, essence of musk 1 gill, extract of vanilla 2 oz. This perfume has such a lasting odor that the handkerchief perfumed with it will retain its odor even after having been washed.

LUBIN'S EXTRACTS. — These are imitated in this country by taking the essential oils of different odors, cutting them with alcohol, and putting them up in bottles the exact imitation of the genuine Lubin bottle.

No regular formula is followed, but the article to be imitated is placed before the perfumer and different oils mixed and tried till the imitation is satisfactory.

Many of the essential oils, as purchased in this country, are adulterated with fixed oils, and thus the preparations from them are apt to stain the handkerchief; but once or twice filtering through magnesia takes out the adulteration, and the extract or preparation can be used safely upon the finest fabric.

For filtering it is only necessary to obtain a common tin tunnel, which is kept at any tin-shop, get some filtering paper at any wholesale drug store, fold it into creases so it will fit down in the tunnel, fill this partially with magnesia, and pour upon it the preparation to be filtered. *Animal charcoal* is also used for filtering, and for some articles is preferable to magnesia.

Of course the less alcohol used in these Lubin imitations the stronger will be the extract, although enough must be used to thoroughly dissolve the oils, and render them freely liquid.

COLOGNE WATERS

Derive their name from the city of that name in Europe where they first originated. They are composed of various essential oils, mixed and cut with alcohol, and diluted more or less with soft water. As they were originally prepared, the oils, after being mixed in the requisite proportions, were cut with alcohol, and water freely added. They were then placed in a still and the alcohol driven off, leaving the perfumed waters in the still, and comparatively free from spirit. At the present time, however, the finest colognes contain little or no water, and are composed almost entirely of the various essential oils and alcohol. The following numerous recipes will serve to give one an idea of the variety and qualities of the colognes now manufactured and sold: —

FARINA'S COLOGNE. — Alcohol 1 gallon, oil of bergamot 2½ dr., oil of melisse or balm 1 dr., oil of lemon 21 drops, oil of cedrat 21 drops, oil of lavender 21 drops, oil of sage 10 drops, oil of origanum 10 drops, oil of nutmeg 10 drops, oil of cassia 7 drops, oil of cloves 7 drops, oil of mace 7 drops, oil of neroli 2 dr., oil of jasmine 3 dr., camphor 12 gr.

GUERLAIN'S. — Alcohol 32 oz., oil of bergamot 3 dr., oil of lemon 4 dr., oil of melisse 3 dr., oil of neroli 2½ dr., oil of jasmine 3 dr., oil of rose-

mary 1 dr., oil of lavender 1 dr., oil of cedrat 1 dr., oil of nutmeg 12 drops, oil of cassia 12 drops, oil of cloves 12 drops, oil of origanum 12 drops, oil of musk 12 drops, camphor 10 gr.

DUROCHEREAU'S. — Alcohol 3 gallons, oil of orange 1 oz., oil of bergamot 2 oz., oil of lemon 2 oz., oil of neroli 1 oz., oil of petite grain 1 oz., oil of rosemary 1 oz., oil of lavender 1 oz., oil of jasmine 1 oz., oil of melissa 1 oz., rose water 4 oz., orange-flower water 4 oz.; mix, and shake well, filter twice, let it stand fifteen days, then distil, and you will have the most perfect eau de cologne that can be made.

DARRAN'S. — Alcohol ½ gallon, oil of lemon ½ oz., oil of cedrat ½ oz., oil of neroli ½ dr., oil of rosemary ½ dr., oil of jasmine 3 dr., camphor 10 gr.

COLOGNE WATER, No. 1. — English oil of lavender, oil of bergamot, oil of lemon, oil of neroli, of each 1 oz., oil of cinnamon ½ oz., spirits of rosemary and spirits of balm, of each 15 oz., highly rectified spirit 7½ pints; let stand together fourteen days, then distil in a water bath.

No. 2. — Oil of bergamot, citron, and lemon, each 3 oz., oil of rosemary, neroli, and lavender, of each 1½ oz., oil of cinnamon ⅙ dr., rectified spirit 24 pints, compound spirit of balm 3 pints, spirit of rosemary 2 pints; mix, and let stand ten days, then filter, and it is fit for use.

No. 3. — Essential oil of bergamot, of lemon,

of neroli, of orange peel, and of rosemary, each 12 drops, extract of cardamom seeds 1 dr., rectified spirit 1 pint; it improves by age.

No. 4. — Essence of bergamot 40 minims, essence of lemon 45 minims, oil of rosemary 6 minims, oil of orange 22 minims, neroli 12 minims, highly rectified spirit 6 oz.

No. 5. — Alcohol 1 pint, oil of bergamot, oil of orange peel, true oil of rosemary, extract of cardamom seed, of each 1 dr., orange-flower water 1 pint; mix, and let stand five days, then filter.

No. 6. — Fresh flowering melisse 24 oz., lemon rind cut fine 4 oz., cinnamon, cloves, and nutmeg bruised, of each 4 oz., coriander seeds bruised 1 oz., dried angelica root 1 oz., rectified spirit 1 gallon; macerate four days and distil in a water bath.

No. 7. — Sage, angelica, wormwood, savory, sweet fennel, hyssop, balm of melisse, sweet basil, rue, thyme, marjoram, rosemary, origanum, red calamint, creeping thyme, lavender flowers, of each 10 oz., sweet flagroot 5 oz., rectified spirit 2 gal., water q. s.; distil three gallons.

No. 8. — Rectified spirit 8 pts., oil of clove, oil lavender, oil of bergamot, of each ½ oz., musk 15 gr., yellow saunders shavings 4 oz.; digest for eight days, and add each of orange water and rose water 2 oz.

No. 9. — Oil of sandal wood 20 drops, tincture of musk 2½ oz., essence of bergamot 2½ oz., oil

of cloves 5 dr., oil of lavender 5 dr., rose water 2 pts., orange-flower water 2 pts., spirit of wine (alcohol) 1 gal.; mix and filter.

No. 10. — White honey 8 oz., coriander seed 8 oz., fresh lemon peel 1 oz., cloves ¾ oz., nutmeg, benzoin, styrax, of each 1 oz., rose and orange-flower water, of each 4 oz., rectified spirit 3 pints; digest for seven days and filter.

No. 11. — Spirit of rosemary and essence of violet, of each 1 oz., essence of bergamot and jasmine, of each 1 dr., oils of verbena and lavender, of each 1 scruple, rose water ½ pt., orange-flower water 1 oz., rectified spirit 2 pts.; mix, let stand four days, and filter.

No. 12. — Honey water 2 oz., tincture of cloves 1 oz., tincture of flagroot, lavender, and of long cypress, each ½ oz., spirit of jasmine 9 dr., tincture of orris 1 oz., tincture of neroli 20 drops; mix, and filter.

No. 13. — English oil of lavender, oil of clove, oil of bergamot, of each 2 dr., otto of rose and oil of cinnamon, of each 20 drops, essence of musk 1 dr., rectified spirit 1 dr.

No. 14. — Essence of bergamot 6 dr., of lemon 2½ dr., oil of neroli, lavender, and rosemary, of each 1 dr., oil of orange and nutmeg, of each 2 dr., essence of cedrat ½ oz., essence of millefleur and of roses, of each 2½ dr., rose water 1 lb., or 1 pt., rectified spirit 6 pts.

No. 15. — Oil of orange peel ½ oz., essence of

bergamot and lemon, and oil of lavender, of each 2 dr., oil of rosemary 1 dr., oil of thyme 20 drops, oil of jasmine 1 oz., alcohol 1 pt.

No. 16. — Rectified spirit 4 pts., oil of bergamot 1 oz., oil of lemon ½ oz., oil of rosemary ½ dr., oil of neroli ¾ dr., oil of English lavender 1 oz., oil of oranges 3 dr.; mix well, and then filter.

No. 17. — Alcohol 1 qt., oil of bergamot 1 oz., oil of lavender 1 oz., oil of citronella 2 dr., cinnamon oil 10 drops, oil of cloves 15 drops; mix and let stand ten days; does not need filtering.

No. 18. — Alcohol 1 qt., lavender oil 1½ oz., oil of bergamot ½ oz., oil of jasmine 1 oz., oil of neroli ½ oz., oil of origanum 10 drops, oil of cinnamon 10 drops, oil of cloves 20 drops; mix, and let stand twenty-four hours.

No. 19. — Alcohol 1 qt., bergamot oil ½ oz., lavender oil ½ oz., oil of lemon and orange, each 1 oz., oil of lemon grass 3 dr., oil of cassia 10 drops, oil of cloves 20 drops; mix, and let stand twenty-four hours, then add 1 pint of pure spirits, filter.

No. 20. — Alcohol 1 qt., bergamot oil 1 oz., lavender oil ¼ oz., citronella oil 1 dr., oil of orange peel ½ oz., lemon oil 2 dr., oils of cinnamon and cloves, each 15 drops; mix, and let stand one hour.

No. 21. — Alcohol 1 pt., lavender oil 1 oz., oil of citronella 2 dr., oil of cinnamon and cloves,

each 15 drops, pure spirits, only proof, 1 pt.; mix, and let stand twenty-four hours. This is one of the cheapest colognes that can be made. To make a perfumed water for wetting the hair, it is only necessary to add 1 quart or more of soft water to the above.

The following are recipes of French perfumery made and put up in fancy bottles, and sold at high prices as imported.

EAU DE LAVENDE. No. 1. — Mitcham oil of lavender 8 oz., essence of bergamot 1½ oz., essence of musk 4 oz., rectified spirit 2 gallons; mix.

No. 2. — Oil of lavender and oil of bergamot, of each 3 dr., otto of rose and oil of cloves, of each 6 drops, musk 2 gr., oil of rosemary 1 dr., honey 1 oz., benzoic acid 2 scruples, alcohol 1 pt., distilled water 3 oz.

EAU DE MARESCHALE. — Grain musk and ambergris, of each 20 gr., oils of bergamot, lavender, and cloves, of each 1 oz., oil of sassafras 10 drops, oil of origanum 20 drops, alcohol 2 qts.; mix.

EAU DE MILLEFLEURS. — Spirit of cumin seed, oil of sassafras and rosemary, of each 30 drops, oil of lavender and otto of rose, of each 2 dr., neroli ½ dr., oils of pimento and cloves, of each 20 drops, essence of bergamot 4 dr., oil of orange 1 dr., essence of lemon 8 oz., essence

of vanilla 1 scruple, elder-flower water 4 oz., rectified spirit 30 oz.; mix and filter.

EAU SANS PAREILLE. — Musk 10 gr., civet 5 gr., balsam of Peru 12 gr., oil of cloves 4 drops, oil of rhodium 2 drops, salt of tartar ½ dr., alcohol 2 oz.; mix, let stand twenty-four hours, and filter.

EAU DE MELISSE DES CARMES. — Fresh balm flowers 24 oz., cinnamon, nutmeg, and clove, of each 2 oz., coriander seed and dried angelica root, of each 1 oz., alcohol 8 pt.; macerate eight days, and distil in a bath to dryness.

TINCTURES.

The following tinctures are chiefly used in the compound perfumes.

TINCTURE OF BALSAM OF PERU AND TOLU. — Digest 1 oz. of the balsam with 8 oz. of alcohol for some days, shaking it occasionally, then filter; tincture of benzoin in the same manner.

TINCTURE OF ANGELICA. — 1 part of the dried root to 8 of alcohol.

TINCTURE OF LEMON, OF ORANGE, OF CITRON, AND BERGAMOT. — An ounce of the fresh peel to ½ pt. of alcohol.

TINCTURE OF MUSK SEED. — Digest 16 oz. of bruised musk seed with 3 pts. of alcohol for a month, and filter.

TINCTURE OF MUSK. — China musk 2 dr., alcohol 16 oz.; macerate for a month, and filter.

TINCTURE OF AMBERGRIS. — 1 dr. of ambergris, distilled with a gentle heat, 3 oz. of alcohol.

TINCTURE OF CIVET. — Bruise ½ oz. of civet, ½ oz. of ambergris, and the same of sugar candy, and macerate in a quart of alcohol for six weeks in a warm place.

TINCTURE OF VANILLA. — Vanilla, cut very small, 2 oz., alcohol 1 pt.; macerate for two or three weeks, then pour off the alcohol and put into the vanilla sediment a pint of fresh alcohol; let stand six weeks, pour off, and filter.

TINCTURE OF RHODIUM. — Rosewood 1 lb., alcohol 3 or 4 pt.; macerate three or four weeks, and filter.

TINCTURE OF VETIVER. — Take 2 lbs. of the root of vittie vayr, cut small, and moisten it with a little water; let it macerate twenty-four hours, then beat it in a marble mortar; macerate it in sufficient spirit to cover it, eight or ten days, and strain with pressure; filter through paper, and in two weeks repeat the filtration.

TINCTURE OF PATCHOULI. — Dried patchouli 1 oz., rectified spirit 1 pt. It is generally combined with other perfumes.

ESSENCES.

Essences are prepared in two ways, first, by maceration, and second, by cutting the essential oils in alcohol. The following essences are made by maceration, —

ESSENCE OF NEROLI. — Alcohol ½ pt., orange peel, cut small, 3 oz., orris root, in powder, 1 dr., musk 2 gr.; let it stand in a warm place three days, and filter.

ESSENCE OF LEMON. — Alcohol ½ pt., fresh lemon peel, cut small, 4 oz.; let stand, and filter, as above.

ESSENCE OF BERGAMOT. — Spirit of wine or alcohol ½ pt., bergamot peel 4 oz., as above.

ESSENCE OF VIOLETS. — Spirit of wine ½ pt., orris root 1 oz.

ESSENCE OF CEDRAT. — Essence of bergamot (as above) 1 oz., essence of neroli 1 dr.

ESSENCE OF JASMINE. — Essence of violets 1 oz., essence of cedrat 1 dram; other essence in the same manner. Essences from essential oils are very easily and simply made. They consist of the essential oil usually cut with alcohol in the proportion of 9 parts of alcohol to 1 of the oil. Thus to make essence of lemon we have only to pour into a phial 1 oz. of oil of lemon and 9 oz. of alcohol; let stand three hours.

ESSENCE OF CLOVE. — Alcohol 9 oz., oil of clove 1 oz. This is the common method adopted in the United States for manufacturing essences of all kinds.

EXTRACTS of the same flavors are made by adding ½ oz. of the oil to the proportions given above. Thus extract of lemon is composed of 1½ oz. oil of lemon and 9 oz. of alcohol.

Essences are generally colored by coloring matter being added after they are made, as most of them are colorless, or nearly so, in their natural state, particularly those made from oils. Those made by maceration are slightly colored by the article being macerated, and it is to imitate these colors that coloring matter is used in those made from essential oils. Thus, essence of lemon is colored yellow by curcuma, mentioned in another part of this work.* Essence of orange is colored orange color by mixing yellow and red together. Cinnamon essence is colored by mixing yellow and red, having the red largely predominate. Checkerberry or wintergreen is colored red, etc. Each essence has a peculiar color of its own, all slightly varying from each other. Essences made by the foregoing recipes will be found to be far superior, though not nearly so expensive as those generally kept for sale at the stores, as the latter are almost invariably largely diluted with water.

AMMONIATED PERFUMES.

AMMONIATED COLOGNE WATER. — A fragrant and reviving substitute for "*spirit of sal volatile.*" Muriate of ammonia 5 dr., subcarbonate of potash 8 dr., eau de cologne 12 oz., oil of cedrat and

* See Colors for Pomades, Pomatums, etc.

bergamot, each 15 drops (dissolved in 1 oz. of alcohol); mix.

EAU DE LUCE. — Mastic 2 dr., alcohol 9 dr.; dissolve, and add to the tincture 30 drops of oil of lavender, 10 drops oil of bergamot, and 1 pint of strong aqua ammonia.

ESSENCE FOR SMELLING BOTTLES, No 1. — English oil of lavender and oil of bergamot, each 1 dr., oil of orange peel or of cedrat 8 drops, oil of cinnamon 4 drops, oil of neroli 2 drops, alcohol and strong aqua ammonia, of each 2 oz.

No. 2. — Alcohol 1 pint, bergamot oil 2 dr., lavender oil ½ oz., oil of cloves 10 drops, cinnamon oil 5 drops. Cut the oils thoroughly in the alcohol, then add ½ pint of aqua ammonia.

SMELLING SALTS. — Hydrochlorate of ammonia 8 oz., carbonate of potash 3 oz., essence of lemon and oil of cloves, each 20 drops, oil of rosemary 12 drops, oil of bergamot 10 drops, oil of cinnamon 10 drops, camphor gum 12 gr., alcohol and ammonia, each ½ oz. Dissolve the camphor and oils in the spirit, mix the hydrochlorate and carbonate, first powdered separately, rub together, add the spirit, mix, add the liquid ammonia, then fill the bottles immediately.

ACETIC PERFUMES.

AROMATIC SPIRIT OF VINEGAR. — Strong acetic acid 16 oz., camphor 1 oz.; when dissolved add 1 oz. each oils of cloves, lavender, and lemon.

COLOGNE VINEGAR. — Cologne 1 pint, acetic acid 1 oz.

VINAIGRE DE JOVENCE. — Spirit of cucumber 4 oz., spirit of storax 2 lbs., strong vinegar 8 lbs.

VINAIGRE SCELLITIQUE, *for clearing the voice.* — Among speakers and vocalists it is desirable, before commencing the exercises of their vocation, that the throat be freed from all pituitous hoarseness. This vinegar accomplishes that object; besides imparting a tone to the organs, it serves to develope the voice. Put 5 or 6 drops of the preparation in a glass of warm water, and gargle therewith morning, noon, and night on the days on which the voice is to be exerted. Dried squills 1 oz., good vinegar 12 oz., alcohol ½ oz. Macerate for two weeks, then press and filter.

ALCOHOLIC VINEGAR, *for Fits and Swoons.* — Equal parts of strong vinegar and alcohol, say 1 pint of each, ether 2 or 3 drops. Excellent in cases of fainting and swooning.

PRESTON SALTS. — A cheap and effectual smelling salt. Equal parts of muriate of ammonia or sesquicarbonate of ammonia and fresh slacked lime. Fill the bottle with these rammed hard, and drop a few drops of oil of bergamot on the top previous to corking. After the corks are put in, they must be dipped in melted sealing-wax.

SCENTED POWDERS, SCENT BALLS, PASTILLES, ETC.

ROSE POWDER. — Powdered starch 3 oz., carmine, or vermilion, to color, otto of rose 8 drops, orris powder 1 oz.; mix.

VIOLET POWDER. — Orris powder 4 oz., oil of bergamot 3 drops, essence of ambergris 20 drops.

POUDRE A LA MARECHALE. — Oak moss in powder 2 lbs., plain starch powder 1 lb., powdered cloves 1 oz., calamus 2 oz., cyperus 2 oz., rotten oak-wood powder 2 oz.; mix.

PORTUGAL. — Dried orange peel 1 oz., dried bergamot peel ½ oz., cloves 1 oz., storax 1 dr., ambergris 8 gr., musk 5 gr.; mix.

SCENT POWDER. — Orris root 16 oz., dried ccacia flowers 8 oz., dried bergamot peel 2 oz., musk seed ½ oz., cloves ¼ oz.; pound and powder all together.

SACHET A LA FRANGIPANNI. — Orris-root powder 3 lbs., vitivert powder ¼ lb., sandal wood powder ¼ lb., otto of neroli 1 dr., otto of rose 1 dr., otto of sandal 1 dr., musk pods ground 1 oz. The name of this sachet has been handed down to us as being derived from a Roman alchemist of the noble family of Frangipanni.

SCENTED MEDALLIONS, *for Bracelets, or for carrying in the pocket about the person.* — These consist of perfumed powders made into a paste and

moulded to any desired form before drying. The above powders beaten up with mucilage or gum-tragacanth answer the purpose.

FUMIGATING PASTILLES FOR BURNING. — Powdered cascarilla bark 8 oz., benzoin 4 oz., yellow saunders 2 oz., styrax calamita 2 oz., olibanum 2 oz., charcoal 3 lbs., nitre 1½ oz., mucilage of tragacanth enough to make a paste; and form into conical pastiles.

No. 2, INCENSE. — Styrax 2½ oz., benzoin 12 oz., musk 15 gr., burnt sugar ½ oz., frankincense 2½ oz., mucilage of tragacanth to form a paste.

THE HUMAN HAIR.

It is not my purpose or design to enter into a long dissertation upon the uses of the human hair, nor the purposes for which it was designed by the Creator. Suffice it for us to know that the hair is given us; and the great desideratum of most men and women of all ages has been, and still is, how to keep it.

All histories of the human race go to prove that the hair has ever been decidedly precarious property, and numerous instances are mentioned in the sacred Scriptures, showing the fact that bald heads are at least no "modern improvement" or invention. We are told that one prophet was so particularly unfortunate in the loss of his hair as to excite the ridicule of some wicked children, who were very properly punished for their wicked propensity for abusing bald heads, by being devoured by a number of bears. It is not impossible but that these identical bears furnished the first "*genuine bear's grease*" that was ever *warranted* to cover bald heads with a "rich and luxuriant growth of hair," though I find noth-

ing in their history that justifies me in stating such to be the actual fact.

It will be my aim to point out the peculiarities and diseases of the hair in as explicit and concise a manner as the limits of this little work will allow, using plain English language, discarding and ignoring all professional, unpronounceable, and *non-understandable* Greek and Latin terms as far as possible, which serve only to confound and confuse the reader, and as a perilous gymnastic exercise for his jaw in endeavoring to pronounce them.

In commenting upon the peculiarities and diseases of the hair, I shall endeavor to do so in a manner readily understood by all, using as few words, and coming to the point as soon as possible. In perusing the numerous and various volumes that have been published from time to time, some parts of which have touched upon the hair and its diseases, I have failed to see the necessity of poring over and wading through hundreds of pages of uninteresting reading matter to obtain the information that could easily have been published upon ten or a dozen pages.

For the information here published I am largely indebted to the works of M. Ruger, Wilson, Neligan, Cazenave, Albert Vauquelin, and others; and particularly to the excellent work upon the hair, published by Dr. B. C. Perry, of New York.

There is probably no part of the human system

so little studied, so little understood, and so little treated upon, as the hair. And in perusing the various medical works that have been published, it is amusing to note the different opinions expressed and the diversity of ideas entertained by different eminent medical practitioners concerning the hair, some of which are diametrically opposed to those published by others. Poor outsiders in despair may well ask the oft-repeated question, "*When doctors disagree, who shall decide?*"

Medical writers differ largely as to the number of diseases of the hair, — some describing and treating upon as many as eight or ten, while one in particular gravely states that there are but three, viz., Alopecia, or falling of the hair; Loss of Color, or premature grayness; and Pityriasis, or dandruff; these diseases being the result of numerous and widely differing causes. Now, with all deference to this learned doctor's opinion, I cannot help thinking that he might, with equal propriety, have stated that the human system was subject to only *one* disease, viz., death; said death being "the result of numerous and widely differing causes." It is true that the falling of the hair is the only apparent disease to a superficial observer; but, very little observation will convince any one that the falling off is not the disease itself, but only the result of some disease of the hair. These diseases are various, and require as different treatment as do the various

diseases of the body, and will be duly noted and commented upon in their places. I shall first, however, proceed to describe the anatomical construction of the hair and its relation to

THE SKIN.

The skin is composed of three elements, defined as follows: "The complex fibrous tissue, which, with blood-vessels, lymphatics, and nerves, makes up the *cutes vera* or corium; a layer of *basement membrane* investing this, and an investment of peculiar thickness and tenacity which is known as the *epidermis* or cuticle."

The Corium.—Were we to remove the epidermis or cuticle from any considerable portion of the body, there would be revealed a soft, rather uneven surface of a pinkish hue, the color being deeper in some parts than in others. Under a microscope of moderate power it would exhibit in many portions numerous small conical projections, varying in length from $\frac{1}{33}$ to $\frac{1}{22}$ of a line. (A line is about the eleventh of an inch.) Besides these numerous elevations on the surface of the corium, we should observe it to be marked with no small number of depressions. These are various in their nature, some being follicles or comparatively shallow cavities, having different purposes, such as to contain and nourish the roots of the hair, to secrete oil, etc., while others are

regular tubes of greater or less length. These tubes lead mainly from the sweating glands; through them is drawn off from the system a large amount of watery fluid holding in solution various effete substances. There are also sebaceous glands, the principal use of which is, by conveying upon the surface a lubricating oil, to keep the skin flexible, that it may not become dry, harsh and cracked through the action of the elements. The greater number of the sebaceous glands, however, are found in connection with the hair follicles, and pour their oily secretion into the hair tubes. All these depressions are lined by cells which are continuous with those of the epidermis. In the hair follicles they are found in process of being changed into the substance of the hair. In the sebaceous follicles they seem not to be themselves changing, but they serve to attract fatty matter from the blood, discharging it upon the surface. In the cerumen glands they form a waxy matter, which they discharge upon the integument lining the meatus of the ear. And in the sweating glands we find them instrumental in disengaging and bringing to the surface a vast amount of matter, consisting of a watery fluid which holds in solution various substances not needed in the system.

Thus, in a few words, the skin is, we find, composed of three layers. The outer being the *cuticle*, sometimes called scarf-skin, and is the

part removed by a blister. Beneath this is a stratum called the *basement membrane*, and beneath this the *corium* or *true-skin*. This latter part is that portion of hides in lower animals that is converted into leather by the process of tanning, and it is in this part that the bulb or follicle containing the roots of the hair is situated.

THE HAIR.

It is well said that the very hairs of our head are numbered, and no application can cause one more hair to grow than we are born to have; any more than we could cause an additional finger to grow. Each hair consists of its shaft and the root; the former including all that portion free from the surface of the skin; the latter the portion beneath the surface. The bulb is the deepest portion of the root, and is from one and a half to three times the diameter of the shaft. The shaft in straight hairs is rounded and straight, undulated and flattened in the wavy, and spirally twisted, and flat in the curly and woolly hairs. It consists of, 1st, the *corticle* or *fibrous substance;* 2d, the *cuticle;* and 3d, the *medulla*, which, however, is often absent. The *fibrous substance*, which constitutes the greater part of the bulk of the hair, is striated longitudinally, streaked or spotted, and more or less colored, except in white hairs, in which it is transparent. The color is

sometimes pretty regularly distributed though its whole substance; at others, concentrated in a few elongated, granular spots. This description of the fibrous substance of the shaft applies also to that portion of the root which is solid and brittle. In deeper and softer portions, the hair plates are less rigid, and have the form of more or less elongated cells, with cylindrical, straight, or serpentine nuclei, easily rendered apparent by aceetic acid.

The color of the fibrous portions of the hair is due partly to the granules of pigment, to some extent to the air cavities, and partly to the pigment blended with the substance of the hair plates. The granule pigment presents all shades, from clear yellow, through red and brown, to black. The last mentioned, or diffused pigment, is quite absent in white hair, and is scanty in clear, fair hair. It is most abundant in the more opaque fair hairs, and in red as well as in dark hair, — it alone sometimes producing an intense red or brown color. These two pigments vary in their proportions, but are about equal in very light and very dark hairs. The *cuticle* of the hair is a very thin, transparent pellicle investing the hair, and in intimate union with the fibrous substance. It consists of but a single layer, composed of plates arranged like tiles. On the lower part of the root, however, there are two layers of

this cuticle or epidermis, the cells of the outer layer being thicker than those of the inner.

The *medullary* substance varies most of all the constituents of the hair. It is a cord extending in the axis of the hair from near the bulb almost to the point. It is usually present in thick, short hairs, and the stronger long ones, and the white hairs of the head, and absent in the down and colored hairs of the head. The medulla usually constitutes from one-fifth to one-third of the whole diameter of the hair, being both relatively and absolutely thickest in short, thick hairs, and thinnest in the down and colored hairs of the head.

The *hair sacs* are flask-like follicles, extending into the upper layers only of the corium, in case of the finest hairs, about half way through it in case of those of medium size, and even through to the subcutaneous tissue in case of the longest and strongest (the whiskers and hair on the pubes). They are merely involutions of the skin, at the bottom of which the hair papilla is situated. They have, therefore, an external root sheath and an external layer, the latter being continuous with the corium, and the former with the epidermis.

The *root sheath*, or the epidermic investment of the hair sac, is continuous with the epidermis around the aperture of the sac, and consists of two layers, an internal and an external. The *external* root sheath is continuous with the malpig-

hian layer of the skin, and rests on a distinct basement membrane, which, however, cannot be demonstrated between this and the internal fibrus layer of the hair sac, except on the lower half of the sac. At the bottom of the latter the cells of this layer pass gradually into the round cells which cover the papilla. The *inner* root sheath is a transparent membrane extending from the bottom of the hair sac over more than two-thirds of it. It is connected externally with the external layer just described, and internally, with the cuticle of the hair; being, in fact, blended with the latter.

Finally, the *papilla* of the hair belongs to the sac, and corresponds to the papilla of the skin. It is connected with the fibrous tissue of the sac by a pedicle. Its surface is perfectly smooth, and it consists like the cutaneous papillæ, of an indistinctly fibrous tissue, with a scattered nuclei and granules, but no cells.

In short, the hair consists of a long, straight, or wavy shaft, connected to a root contained in a sac situated in the corium, or true-skin. This shaft is hollow, like a pipe-stem, as can be seen by placing a single hair under an ordinary microscope; a light line will be at once noticed, reaching the whole length of the hair. The cuticle, or outer covering of the hair, as has been before noted, is laid on like the tiles of a roof, making it rough and notched, and if a hair be

placed between the thumb and forefinger, and the finger worked backward and forward, the hair will move but one way, and will soon move entirely from the grasp. Hairs withstand putrefaction better than any other part of the organism. Even those of mummies are found to be quite unchanged, although the bodies to which they belong have been dead over two thousand years. Hence the hair is preserved as a cherished relic of the departed. Hairs are quite elastic. They stretch without breaking to nearly one-third more than their ordinary length; and if stretched only one-fifth, they contract again so as to be only one-seventeenth longer than their natural length. Still their strength is great, although they are so extensible. A hair of the head will support at least six ounces without breaking. The hairs readily imbibe water, and as readily give it out again; hence they are sometimes dry and brittle, and sometimes moist and soft, according to the amount of moisture the skin or atmosphere contains. They are also longer or shorter, in proportion as they contain more or less moisture; and hence their use in hygrometry. The hairs become slowly colored in their development, being quite colorless in the embryo, and paler in youth generally than in middle age. In the adult, the palest are the downiest hairs, which have remained, as it were, in the fœtal condition, while the longer ones are always darker, and the

darkest of all are those of the head, beard, and pubes.

Black hairs are generally the coarsest, and blond the finest. On the heads of females the length of the hairs has sometimes equalled that of the whole body, and the coarsest hairs are also found on women. Beards also frequently reach down to the waist.

The hairs are not true cylinders, as generally supposed, but present an oval section, or some form differing still more from circular. Those of the scalp are most nearly cylindrical in form; nor are they of equal diameter, but fusiform rather, and usually terminating in a very acute point. Indeed, hairs cut off squarely become pointed again in a short time, apparently by the wearing away of the more external portions of the fibrous substance.

The number of hairs upon a given extent of surface varies with their color, and the particular part of the body. On the same extent of surface Withof found 147 black hairs, 162 brown, and 182 blond. On a surface $\frac{1}{4}$ of an inch square he found, in case of a moderately hairy man, 293 hairs upon the scalp, 39 on the chin, 34 on the pubes, 23 on the forearm, 19 on the back of the hand, and 13 on the front side of the leg. In men, closely set hairs often occur on the chest, shoulders, and extremities. At the age of puberty a sudden development occurs in both sexes upon

the pubes, and in males on the chin, cheeks, abdomen, and chest also.

The direction of the hairs and hair sacs is seldom perpendicular to the skin, but oblique, they being arranged in curved lines, which either converge towards certain points or lines, or diverge from them in two or more directions; hence result a variety of figures which Eshricht terms "streams, whorls, or crosses," which are easily made out on the median line of the back, chest, abdomen, etc. The natural direction of the hairs is, in general, downwards, as shown especially on various parts of the head. It may, however, here be changed by persevering efforts.

When a hair is pulled out it breaks off just above the bulb, and another is produced from the latter directly, as at first. Heusinger found that on pulling out the whiskers of dogs they were reproduced in a few days from the old sacs; and when the hairs fall out after sickness it is probably the case, since the latter remain for a long time after the hair has disappeared from the surface. — *E. H. Weber.*

Uses and Physiological Relations of the Hair.— The uses of the hair are various, depending partly upon its physical and partly on other characteristics.

First. The hair is for protection, whether against cold or other agents, as on the head, etc.;

against exposure to light, as in case of the eyebrows.

Second. It is for concealment, as on the pubes, etc.

Third. It prevents the ingress of foreign bodies, as in the nostrils, the eye by means of the eyelids, and the ears.

Fourth. The hair gives character and expression, as the beard, which is also a protective against changes of temperature in circumstances requiring its agency in this respect. A tendency to bronchial affections is frequently removed by allowing the beard to grow.

Fifth. The hair is for ornament, as that of the head.

The hairs, like the nails, grow again, if cut or worn away; otherwise they remain at their typical length in the various parts of the body. Bertholdt found the hairs of the heads of females from sixteen to twenty-four years old to grow about seven lines a month, or about three-fourths of an inch, nearly. If the beard were shaved every twelve hours it would grow from 5½ to 12 inches, and if every twenty-four hours to from 5 to 7½ inches per annum. Shaving once in thirty-six hours would reduce the annual growth to from 4 to 6½ inches. The beard grows one-sixth faster by day than by night, and in eighteen days about one-fortieth more in summer than in winter. Kolliker supposes that each sac is supplied by

the vessels of the capilla with a sufficiency of nourishment to develop the hair to its typical length, and to keep the whole hair in a state of moisture and vitality, and, if the hair be cut, the then superfluous amount of nourishment develops the hair till it again attains to the previous length. This is equivalent to saying that the hair sacs have the power to develop the hair of a determined length, it being also a function of each to maintain this length, so that if the hair is cut, it again attains to it. In regard to the growth of the hair medical writers differ in their opinions. Some assert that the shaft grows, while others claim that the whole growth is from the root, and that the shaft is pushed along till the hair attains its normal length. Though the hairs are not vascular, they are not dead substances. Fluids are doubtless diffused through them, which serve to maintain their vitality, ascending from the bulb through the fibrous portion and the medulla to every part, probably by mere imbibation. After accomplishing their object, they pass off by evaporation, and another supply is afforded. From without, the hair can absorb fluids only in the form of vapor. The oily matter of the sebaceous glands or follicles is spread upon the cuticle of the hair, but does not, probably, penetrate it at all, nor is there any greasy fluid afforded within by the medullary cells. The existence of air vesicles in the medullary

axis can arise only from a diminished supply of fluids from the sac, compared with the amount evaporated. It is thus due to partial drying up of the hair. Gray hairs contain more air vesicles, and to them its silvery appearance is due. That their vitality is not, however, essentially diminished, is proved, from the fact that they grow rapidly when cut.

Thus the hairs live, and must, of course, be modified in their development and growth by the vital conditions of the skin. The condition of the hair is, therefore, an index of that of the skin. If they are soft and shining, it may be inferred that the skin is healthy and active; if dry and harsh, that it is a collapsed and inactive condition. Any modification, therefore, in the circulation of the skin, and, hence, of the blood supplying the hair sacs, modifies the conditions of the hair. Thus, it may fall out after sickness, especially from fevers. In old persons, also, it falls out, probably from an obliteration of the vessels of the hair sacs.

The fact that the hairs of the head may become erect under the influence of powerful emotions is usually associated with the *cutis anserina*, so called. We should, however, associate it with the fact established by Eylandt, that the hair sacs of various parts of the body have smooth muscular fibres inserted into them, and which he has termed the *arrectores pili*.

The presence of sulphur in hair accounts for its peculiar odor in burning.

Mode of Treatment of the Hair. — Here again we find a variety of opinions among the medical fraternity. Thus, while some old, eminent, and skilful practitioners advise the use of oils and stiff brushes, others, equally skilled, denounce both as not only injurious, but senseless and abominable. Doctor Perry, who has probably devoted more observation and study to the human hair than any other person in this country, publishes an excellent article upon this subject in his book, which I have taken the liberty to copy nearly *verbatim*. "The bad old custom of harsh combing and brushing" (speaking of children's hair), "and the copious use of oil and grease, still constitute the practice of mothers and nurses, with the permission and implied approbation of the family physician. How many cases of serious diseases of the scalp, in infancy and childhood, are directly or indirectly the result of this objectionable treatment, it would be impossible to decide; but from the marvellous delicacy of the integuments at that tender age, and the susceptibility of the constitution, ere its habits have become fixed, and its processes part of a settled routine, we cannot but infer that diseases of the scalp must have been produced in this manner, and that in a vast number of instances the disorder must have been terribly aggravated by

the same malign influences. Does any sensible person, once fully satisfied of the infinite delicacy of the cuticle on the head of a child, imagine that so tender a surface may, with impunity, be daily raked and harrowed with fine-toothed combs and stiff-bristled brushes, and also inflamed and irritated with violent frictions and stimulating applications? No; every touch affecting so delicate a texture should be soft and soothing; every application as mild as possible." He also recommends, above all things, cleanliness, and gentle brushing of the hair in the direction in which it naturally lies. In cases where, from sickness or other causes, the hair may have become dry and brash, or brittle, he recommends an application of a small quantity of tincture of bayberries. This, he says, renders the hair soft, glossy, and flexible, and it has this advantage over other preparations, that the oil, which is its base, unlike other oils, animal or vegetable, possesses no gummy or glutinous principle to irritate the scalp, or obstruct its pores. He recommends, also, in cases where the accumulation of scurf upon the scalp shows a lack of that activity consistent with the condition of perfect health, a wash, consisting of equal parts of 80 per cent. alcohol and aromatic spirits of ammonia, diluted with a large quantity of soft water that has previously been boiled. (The object of having the water boiled being to preclude the possibility of any animalcule in the

water being conveyed to the scalp, in such case a thing were possible.) He then goes on to say: —

"Let no mother or nurse commit the senseless and tasteless error of plastering down the hair of a child firmly to the scalp, and of resorting to some fatty unguent to accomplish this foolish end. Of questionable taste even in grown people, in case of children the practice is abominable. It is injurious, unartistic, and absurd. Everything pertaining to a child should be as free as its own nature." He also recommends slight clipping of the ends of the hair, to keep the tubes open and allow the escape of the natural secretions of the hair, and to obviate the ill results that are frequently noticed in the dry and faded appearance of the ends, which are often also split a considerable distance up the shaft. In the treatment of the hair of adults he has nothing more to add, except to denounce, as highly injurious, the frequent use of the various shampoo liquids used to cleanse the hair and scalp, they being, in his estimation, too strong or too harsh to be of any lasting benefit, aside from their injurious tendency. He comes down heavily, also, on the use of all kinds of hair dyes, particularly those that contain lead or sulphur solutions, and the silly use of heated irons to curl the hair,— the first as being likely to be absorbed into the system, and, by its poisonous nature injuring the eyesight or affecting the sense of hearing, and

the latter as destroying the life of the hair itself. In short, his advice concerning the mode of treatment of the hair, in few words, is this: First, keep the hair and scalp clean; do so gently and without violent rubbing or friction; comb the hair always in its natural direction; keep the hair free from oils, grease, fancy dressings, or any of the various chemical preparations in the shape of hair dyes, depilatories, etc., and study and follow nature more, and art less, — using as a dressing the tincture of bayberry, and as a cleansing fluid the wash before mentioned, viz., alcohol, aromatic ammonia, and water. All this is very well, and good advice in case the hair and scalp are in a healthy condition; but, if diseased, they must be treated for that disease as much as a disease would be treated in any other part of the system.

DISEASES OF THE HAIR AND SCALP.

However numerous and varied the diseases of the hair and scalp may be, their presence is generally made manifest in the three following results, viz., *Alopecia*, or falling of the hair, producing baldness; *Loss of Color*, or premature grayness; and *Pityriasis*, or dandruff.

Alopecia — "Baldness," says one medical writer, "may arise from defective development of the formation pulps of the hair, or defective cir-

culation in them, or defective nutrition of them, or from disturbed circulation in the hair-bulbs — and the causes are, hereditary tendency, acute diseases preceding, certain diseases of the skin, mercury, syphilis, coffee taken in excess, late hours, abuse of pleasure, and old age."

The hair may fall off when the vital powers are directed especially to one part of the body, as in some diseases, during pregnancy, after very active purgation, in rheumatism and gout, and in consumption.

Baldness is much modified by sex; females are less subject than males, probably because there is more fat in them under the skin than in men. "The scalp of bald persons is very thin, and eunuchs, who are generally fat, have remarkably long and permanent hair." Another writer expresses his opinion thus (speaking of the difference of sex in relation to baldness): "One cause of its far greater frequency in men than in women is, very probably, the style of hat so generally worn, especially in this country, and which, by its stiffness, its form, and its heating powers, at the same time banishes all comfort and violates the principles of good taste and common sense and physiological science." Fevers sometimes cause the hair to fall off; the hair follicles generally remain uninjured, however, and the hair eventually grows out again. Alopecia is sometimes caused by an insect called *hair-eater*, found

in the oil tubes and round about the roots of the hair. It is also caused by humors of the blood; by skin diseases, scald head, ringworm, etc.; by loss of vitality or vital stamina of the system, and by old age.

Treatment. — When this disease is caused by skin disease, such as scald head, ringworm, syphilis, mercury, etc., which can at once be seen by a very slight examination of the scalp, it is best to turn the subject over to some regular physician for treatment. If caused by humors or hair-eaters, or lack of vitality and action of the scalp, the *renewers* (the recipes of which are given in another part of this book) can be used to advantage. The sulphur dries up the humor, the lead kills the *hair-eaters*, the glycerine softens the scalp, and renders the hair moist and flexible, and the tincture of cantharides stimulates and excites the vessels of the scalp to action. There is no better preparation than this known for the falling of the hair, and when this fails the case may as well be considered hopeless. In using these renewers, the preparation may be varied to suit the disease. Thus, for *hair-eaters*, more lead is required; for humors, less lead and more sulphur; and, if the scalp needs stimulating, more tincture of cantharides, etc. Knowing the uses and properties of the ingredients, of course judgment must be exercised in using them.

Much has been said concerning the use of lead

upon the hair and scalp, its injurious effects upon the eyes, etc.; but having made inquiries of several barbers and hair-dressers, of my acquaintance who have used these preparations for the last two or three years in their business, I have failed to find a single instance where any injury had resulted from its use to their knowledge. True, lead is poisonous, and must be used judiciously, and so must any other remedy of like properties, and, like everything else, its use can be abused. I do not wish to be understood as recommending it in cases where there is no need of it, nor on sound and healthy scalps. The *Tonic Dressing* is far superior to any sulphur or lead preparations, as a dressing simply, keeping the hair moist and flexible, and holding it to its color. To restore gray hair, of course, the renewers must be used; but the color once restored, the *dressing*, will, in most cases, hold it and keep the hair to its color.

Again, provided these renewers have, in certain cases, been found to produce injurious effects upon the eyes, I think the injury was done by the sulphur and not the lead. The sulphur, as I have before stated, dries up the humor, and might not this humor have found its way to the eyes after having been driven from the scalp? It is well known that humor in the eyes is frequently relieved by boring the ears and wearing rings in them, and might not diseased eyes (if there ever

were any) caused by the use of hair-renewers, be cured in this same manner?

Hereditary baldness, there is, of course, no remedy for, after the hair has fallen off; though, had the Tonic Dressing been used in season, the hair could have been saved, in many instances, I have no doubt.

BLANCHING OF THE HAIR. — *Grayness.* — The process of whitening of the hair is very obscure. Its immediate cause is chiefly a discoloration of the fibrous portion of the hair, and an increase of the air vesicles; but how this is produced, is not understood. Dr. Copeland and others state that the hair usually turns gray first at the free extremities. Dr. Perry, on the contrary, says he has *never* found a case where grayness commenced at the free extremity, the portions nearest the skin invariably exhibiting the first signs of grayness. In examining the various phenomena which involve or consist of a change, of color of the hair, we notice many peculiarities relating both to the nature of the change, and the time occupied in affecting it. Thus the change may be a mere gradual fading, or here and there a single hair is found to have changed, becoming gray, or white with apparent suddenness, or a lock of hair turns gradually gray, while all the remaining hair retains its original color; or the head exhibits an evenly distributed mixture of gray hairs and hairs of the natural color; the

former slowly increasing in number; or finally, the whole hair of the head and face becomes suddenly and permanently blanched. Dr. Perry classifies the causes of grayness under four heads, viz., Constitutional Causes, Emotional Causes, Paralytical Causes, and Premature Causes.

The *Constitutional Causes* are those of old age, etc., and he argues that gray hair is then caused by the secretion of lime or phosphate of lime in the hair. His reasoning is very ingenious, and may be the true theory. Though why such a phenomenon should take place in man alone, and not in the lower order of animals, he does not state. There is no permanent relief for grayness of this kind. White hairs that fall out are seldom reproduced. Dark hairs turn gray earlier than light, and the hair of men sooner than that of women. Sometimes it is the beard which first begins to change; sometimes it is the hair of the scalp. One may see a man whose head will be entirely gray, whose beard has not changed at all; while cases just the reverse of this are also common. In this country men begin to be gray from thirty-five to forty, though sometimes they are more or less gray at thirty, twenty-five, or even twenty years of age. On the other hand, cases are not rare of men who have lived to be fifty or sixty, or even seventy years of age, whose hair still retained its original color. It frequently happens, also, that persons, whose hair has

changed to gray at the usual period of life, have, after a few years, had it changed back to its original color. The philosophy of these changes has received the attention of many medical writers, but no definite conclusion has ever been arrived at in regard to it.

EMOTIONAL CAUSES are those where the hair is changed, suddenly and completely, from its natural color to gray, by intense and prolonged mental excitement, accompanied with agony of spirits. This was the case of Maria Antoinette, the queen of Louis XVI., — her hair turned from black to white in a single night. She passed the terrible night previous to his execution alone with him, and in the morning her hair was completely white, though it was black the evening before. Numerous similar incidents have been known and recorded, — Mary, Queen of Scots, Sir Thomas Moore, and Horace Mann being of the number. These phenomena have been considerably commented upon and discussed by medical men and philosophers; but no definite cause has ever been assigned, and the mystery still remains a mystery.

PARALYTICAL CAUSES. — It is well known that one of the effects of a stroke of paralysis may be the blanching of the hair on the affected side. This change, so total, sudden, and irremediable, refers *exclusively* to that side, and includes even the eyebrows and eyelashes, the hairs on the other side remaining in their natural state. Dr. Perry,

speaking of this effect of paralysis, says: "I have myself known two instances of this kind. One was that of Stephen Manchester, a lad of fine and beautiful organization, who was so unfortunate as to receive a paralytic stroke at the early age of twelve or thereabouts. I examined his head in December, 1853, and found it to present a very singular appearance. The original color had been dark chestnut, and the whole of the hair on one side, in a straight line running from the crown forward and backward, was still of that color, but all the hair on the other side, including eyebrows and lashes, was completely blanched." The other was a similar case of a lady in Portland, Me. Grayness produced in this manner is incurable as long as the paralysis exists.

PREMATURE CAUSES. — The difference between premature and constitutional grayness is this, that while in the latter, or constitutional grayness, the scalp presents a healthy appearance even under the closest inspection, in the former it is readily perceived that the disease is of a local character entirely. The scalp presents the usual signs of debility of the cuticle, and, in many cases, a thick, yellowish fluid is found oozing to the surface, where it deposits a crust, or pellicle, so firmly that it is removed with difficulty. If, however, this is done, the cleansed surface is promptly covered with another deposit. Dr. Perry argues that

this, as in constitutional grayness, is caused by an undue deposit of lime, occasioned by the disease in the scalp; in which opinion he is supported by eminent English surgeons and others. As a remedy he recommends the *Tincture of Wild Indigo Root*, prepared as follows: —

To 4 oz. of pulverized root of the wild indigo plant add 1 pint of alcohol diluted with 1 pint of soft water; let the mixture stand six or eight days in a covered vessel. Moisten the scalp thoroughly with this liquid once in twelve hours. This wash he also recommends for debilitation of the cuticle of the scalp.

Should this fail to arrest the progress of the grayness he recommends a trial of his remedy for suppressed secretion, viz., *Tincture of Black Alder Root*, prepared thus: —

To ½ lb. of pulverized root of black alder add 1 quart of alcohol and 1 of soft water; let stand eight days in a close vessel. Apply once or twice in the day.

These remedies failing to produce a beneficial effect upon the grayness, he urges the use of a strong tincture of green walnut leaves several times a day; and this failing he considers the case as well-nigh hopeless.

DANDRUFF.

Dandruff is easily recognized by the branny or scaly appearance of the scalp. It is caused,

probably, in part by inspissate sudoriparous secretions, but principally by the casting off of the outer portions of the cuticle. This process, which is continually going on all over the system to a certain extent, is sometimes rendered unnaturally active on the scalp by various causes, such as constant irritation and abrasion, to which so many subject that surface by the industrious use of hard brushes and sharp-tooth combs. This cuticular desquamation is, in fact, the only cause assigned by dermatological writers for scurf and dandruff.

"Dandruff, however copious and of however long standing, will cease to form after a few days' or weeks' faithful use of a compound formed by the union of two tinctures, viz., of murillo bark and mulberry root, made as follows: Let the tincture of mulberry root be prepared thus: 4 oz. pulverized root to 1 pint each of alcohol and soft water, and the murillo bark tincture thus: To 1 lb. murillo bark finely pulverized add 1 quart 80 per cent. alcohol diluted with 1 pint of soft water; place the mixture in a tight vessel, and let it stand six or eight days. Equal parts of these two tinctures united, and applied freely to the scalp once in twelve hours, will soon afford relief from the more prominent symptoms, and will eventually effect a radical cure." — *Perry.*

THE HAIR-EATER.

"The regions selected by this destroyer for the exercise of its faculties seem to be the top or apex of the head, and the tract where the hair fringes the neck. Whenever it appears the hair becomes dry and brittle, and, if naturally dark, assumes a yellowish hue, or a variegated mixture of the old and new shades, and presently begins to fall. A peculiarity of this destructive action is, that the hair is never afterwards reproduced. It may be that, having eaten its way into the hollow interior of the shaft, it pours in some poisonous substance, which finds its way to the roots and destroys the apparatus employed in evolving the hair, or paralyzes the nerve of the papula that vitalizes the atoms which enter into its original formation.

"The little pest which is able to achieve this deplorable result is of rather a bluish tinge, and resembles a nit in size, but not in color or shape. Though he triumphs signally over such means of a mechanical nature as are employed to remove him, he quickly succumbs to a solution of hyd. bichlor. [Corrosive sublimate, probably. — ED.*], a few applications sufficing both to destroy him and to counteract the effects of his poison." — *Perry.*

* Hydrargyry chloridum corrosivum, or hydrargyry bichloridum.

SCALD HEAD.

This disease consists of a chronic inflammation of the skin of the head, productive of a secretion of matter peculiar in its nature, and capable of propagating the complaint if applied to the head of a healthy subject. At first the eruption is confined to only a small portion of the head, but by degrees its acrimony is extended to the neighboring parts, and at length the whole of the scalp is eroded and beset with a scabby eruption. Children principally are affected with it. It may arise from uncleanliness, the want of a due, wholesome, and nutritive food, and possibly from bad nursing, — at any rate these will much aggravate the disease. In many instances it is propagated by contagion, either by using a comb imbued with the matter from the head of a person laboring under it, or by putting on his hat or cap.

TREATMENT. — The head or part affected should be first well washed with soap and water, and then the following ointment applied: Fresh butter 3 oz., white wax ½ oz., red precipitate 2½ dr., prepared tutty 1 dr., camphor dissolved in olive oil 1 dr. Melt the first two articles, and when nearly cold stir in the others finely pulverized. Rub this upon the affected parts once a day. Give the child sulphur and cream of tartar mixed in mo-

lasses sufficient to act lightly upon the bowels, or other physic, as mandrake.

Dr. King highly recommends the following: Urine 2 quarts, lard ½ lb., tar 1 oz.; boil all together 2 hours, when blood warm add 2 oz. flowers of sulphur slowly; let it cool, then strain. Wash the parts affected with the liquid, and when evaporated or dry wash with the ointment.

Also, simmer a decoction of elder with a little cream till an ointment is formed, and apply daily. Take sulphur internally. This is said to cure always. — *Beach.*

RINGWORM.

This is an inflammation of the hair follicles, which produces a peculiar yellowish substance, surrounding the cylinder of the hair, and is seen through the outer skin as a minute circular spot, not raised above the level of the skin. This yellow substance escapes from the follicles of the hair upon the surface of the outer or scurf skin, and dries into yellow friable crusts, forming a distinct cup with an inverted border, around the base of each hair. When many of these cups join together they resemble the cells of a honeycomb. The first intimation of the coming mischief is in the appearance of the hair on the diseased spot; it becomes thin, discolored, twisted, and is at last thrown off, in consequence of the disease extending to the deep-seated structure. The spot is left bald,

and the disease has probably involved all the textures down to the bone. The scalp is the chosen site, but the disorder may extend to the face, neck, and body. It is highly contagious, and is easily communicated by contact, and towels, combs, brushes, hats or caps afford a ready means of propagation.

Other diseases may be mistaken for this, but we must look to the cup-shaped crusts, of a bright yellow color, and dispersed; but the most characteristic appearance, and one which distinguishes it from all other diseases of the scalp, is the discolored, dry, and twisted appearance of all the hairs arising from the diseased follicles. On examination these hairs will be found quite loose, if gently drawn by the forceps.

TREATMENT. — The disease should first be identified with a powerful magnifying glass, as many mistakes have been made; scaly tetter, and several other disorders of the scalp, may be mistaken for ringworm, but the mode of distinguishing ringworm from other eruptions of the scalp has been before related.

If, then, we find there is any concomitant disorder with the ringworm, it must first be removed, then the head must be shaved, excepting a few locks in front, if desired; then apply, by means of a short, soft, shaving-brush, all over the head, strong pyroligneous acid, diluted with one-third its volume of distilled or soft water; keep

the head wet with it for two minutes, when slight and transient pain will be felt at the diseased spots, which are immediately rendered visible, though they could not previously be distinguished. These spots become a very bright red, while the healthy scalp is not affected, unless in particular instances, where the skin is fine and delicate. In such cases the stimulus of the acid causes a universal reddening; then the acid should be tried again in a more diluted state; every spot is then detected, and the extent of the disease ascertained. A second or third application, with intervals of three or four days, will complete the cure; once doing so is sometimes sufficient. A thick scab is generally the result of this process, and the scab should not hastily be removed. In seven or eight days the scab rises from the scalp, supported by the new hair; then introduce a fine pair of scissors under it and cut it off, when the skin at the bottom will be found clean and healthy. Examine with the glass, and if there are any yellowish spots, or any suspicious appearances, repeat the application of the acid. — *Dr. James's Treasury of Medicine.*

BARBER'S ITCH.

This is a herpetic affection which much resembles the salt rheum. It is contagious, being communicated from one person to another, generally

by a lather brush or a razor in shaving, and is attended with heat, itching, swelling, and the formation of eruptions and scabs; it spreads to a considerable extent, which renders it very difficult to have the beard taken off.

TREATMENT. — Discontinue shaving, clip off the beard close with scissors; all intemperance in eating or drinking, and exposure of the face to heat must be avoided, and adopt a light, cool diet; apply an ointment of nitrate of mercury, and wash with a solution of oxalic acid. Yellow dock pulverized and soaked in vinegar makes a wash said to be an efficient remedy. The "Boston Journal of Chemistry" publishes the following as a remedy for this disease: Crystallized sulphate of iron 2½ dr., wood charcoal 1 oz. Make a fine powder and mix carefully. The powder to be applied in the evening to the chin.

MICROSCOPIC EXAMINATIONS OF THE SCALP.

The actual state or condition of the scalp can only be determined with any degree of accuracy by careful examinations with a glass. To effect this the head must be placed in such position that the strongest light possible can be thrown upon it. Part the hair carefully so as to expose as much of the scalp to view as possible, rest the glass firmly upon the head, and place the eye as

close to it as convenience and comfort will allow, being careful to have all the light pass free and unobstructed upon the spot to be examined.

The peculiarities of the different diseases have been sufficiently set forth in the preceding pages to enable one to recognize the disease, if any exists, upon the scalp being examined.

The most convenient and useful glass for making these examinations is one invented by Mr. Laban Heath, of Boston, a descriptive plate of which is seen on the following page, and being in fact a combination of magnifying glass, microscope, and telescope. This very ingenious and compact apparatus is sold at No. 20 Washington Street, Boston, and can be safely sent by mail or express to any part of the country; and I would particularly advise barbers and hair-dressers, who intend making the diseases of the hair and scalp a study, to have one by all means. The price of the whole combination is $5.00; that of the magnifier (figure 3) alone is $2.00. The apparatus is well shown in the adjoining cut.

Fig. 1 shows the glass as put up for sale. Fig. 2 shows it as a microscope. In using it for this purpose, it is necessary to have a strong light, and have it shine directly upon the object to be examined, first placing it upon a piece of white paper. This is the power required for examining the mechanical structure of hair, the rough edges or tiles of the exterior coating and the light streak

of the hollow interior, or cylinder that extends the entire length of the hair, the coloring pigments, etc. This power is also useful in making examinations of hair-eaters. If, on a hair that has been detached from the scalp, a small whitish speck is seen near the base of the shaft, it very probably is one of these animals, and this power of the glass shows it at once. The focus of the glass can be adjusted by sliding up or down. Fig. 3 shows the magnifier, or the part used in making examinations of the scalp; is useful, also, for various other purposes. This part is sold separately for $2.00 to those who do not wish for the whole apparatus. Fig. 4 shows it as a spy-glass.

MISCELLANEOUS RECIPES, AND REMARKS.

Razor Pastes. No 1. — Prepared putty powder 1 oz., oxalic acid ¼ oz., gum-arabic 20 gr.; powder and make into paste with water.

No. 2. — Emery in finest powder 2 parts, spermaceti ointment 1 part; mix.

No. 3. — Colcothar and flour of emery equal parts, made into paste with lard.

No. 4. — Finest tripoli and flour of French rotten-stone equal parts, mixed with lard, spermaceti, and olive oil.

No. 5. — Jeweller's rouge mixed with lard.

Used to spread over razor strops to keen the edges of razors when dull.

RED BOTTLE WAX, *for sealing Bottles, etc.*—Common rosin 4 lbs., tallow 1 lb., red lead 1 lb.; mix with heat.

COMMON SEALING WAX.—Shellac 1 lb., rosin ½ lb., vermilion ½ lb.; powder fine and melt over a slow fire.

The bottle wax is used to seal the corks of various fancy compounds, and is applied in the following manner: The wax is broken up into small pieces and placed in a tin dish over the fire till the wax is all melted; the corks are then dipped into it after being first placed in the bottles. They are then stamped with initials, etc., before the wax cools.

Perfumery is generally put up with white kid tied over the corks. To do this properly and have the leather smooth, it must be well soaked with water and tied on while wet. It dries very smooth and white. Narrow red or fancy colored ribbon is then tied over it in various styles, and gives the article quite a Parisian appearance.

FANCY LABELS.—As the sale of an article depends greatly upon the manner in which it is put up, no matter how good or poor its qualities, it will be found in all cases advantageous to use fancy labels, of neat and chaste design, but gorgeous, brilliant, and showy. The article must look rich and attractive, and show by the manner in which

it makes its appearance that it is a standard preparation, designed to be both useful and ornamental. The workmanship of the justly celebrated firm of Forst, Averell, & Co., of New York, specimens of which have been liberally supplied me to accompany this work, is acknowledged at the present time as being superior to that of the English or French manufacturers, while their prices place their labels within the reach of all. They can be purchased in any desired quantities, in large or small lots, of Thayer & Babson, 43 Kilby Street, Boston, or at the head-quarters in New York. Various styles of these labels are printed in blank, to be filled out with the name of any article the purchaser chooses.

APPROXIMATE MEASUREMENT.

For the sake of convenience to those not having the proper instruments for measuring ingredients of preparations I have here inserted the measurements of a few household implements, which, though not strictly accurate, are near enough for all ordinary purposes: —

A pint of water weighs 1 lb., or 16 oz.

One drop is called a minim, 60 make a dram.

A teacup holds about 4 fluid ounces, or 1 gill.

A wineglass, 2 fluid ounces.

A tablespoon, half a fluid ounce.

A teaspoon, a fluid dram.

BOTTLES AND ESSENTIAL OILS.

These can be found in any desired quantity at Thayer & Babson's, Wholesale Druggists, No. 43 Kilby Street, Boston. They keep constantly on hand an extensive assortment of perfumers' materials, and their oils are of the best quality, as indeed they must be in the composition of good perfumery.

CONCLUDING REMARKS.

There is no reason why barbers and hair-dressers should not manufacture all the articles needed in their business. Nor can I see any reason why they should not monopolize the toilet trade. It is now a branch of the apothecary's business, and a very profitable one. Let the barbers take their own trade in their own hands, cover their shelves with perfumery and colognes, hair-washes and renewers, combs, brushes, show cards, etc., and they will soon, I doubt not, find a no small addition to their income. One of the most celebrated perfumers in the world is a barber, now running one of the most splendid hair-dressing saloons in this country. The course he pursued is still open to any barber, and the opportunity equally good. No one has a better opportunity to drive a profitable business than the barber. He is really the *hair doctor*, and has only to style himself a *de-*

matologist to be one. People go to a barber for advice concerning their hair with more confidence than to any one else, and his advice would be law, his preparations infallible, did he but use the advantage he has, in having their confidence. Energy, enterprise, perseverance, and a judicious confidence in one's own abilities, is all that is required to insure success.

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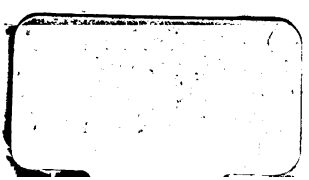
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